

August 10, 2006

The Honorable Edward M. Chen
United States Magistrate Judge
United States District Court
Northern District of California
450 Golden Gate Avenue
San Francisco, CA 94012

**Re: *Synopsys v. Ricoh Company, Ltd.*,
Case No. C03-2289 MJJ (EMC)
Ricoh Company, Ltd. v. Aeroflex, Inc., et al.,
Case No. C03-4669 MJJ (EMC)**

Dear Judge Chen:

Counsel for the parties submit this joint letter in accordance with the Court's request, addressing a dispute relating to whether certain documents were properly withheld as privileged that were obtained from or provided to a third party fact witness who counsel for defendants and defendants' experts interviewed. Counsel have met and conferred repeatedly, and while they have resolved a number of other disputes, they are at an impasse on two different privilege related issues, which are being addressed in two separate joint letters.

Ricoh's Statement

In the 1980's, Yoon-Pin Simon Foo was a student at the University of South Carolina, and was one of several students who worked for Dr. Kobayashi's company, International Chip Corporation ("ICC"). Dr. Kobayashi recruited Mr. Foo to the University, and acted as his advisor for several years. In 1987, Mr. Foo had a disagreement with Dr. Kobayashi regarding Mr. Foo's failure to complete a project for ICC, and Mr. Foo changed advisors. Prior to the falling out, Mr. Foo did some limited computer coding work for ICC, and under the direction of Dr. Kobayashi, helped enter some the computer software code that was included in a version of ICC's software called Knowledge Based Silicon Compiler. KBSC's documents reflect that Mr. Foo was among the least active of the students who did work for ICC.

Nearly twenty years later, in April 2006, counsel for the Aeroflex Defendants and Synopsys contacted Mr. Foo, and agreed to pay him \$250 per hour to "consult" about Mr. Foo's work for ICC in the 1980's. Defendants' counsel exchanged a large number of documents with Mr. Foo, but have refused to produce them. Apparently as a result of these conversations, on April 24, 2006, defendants alleged for the first time in their supplemental invalidity contentions, claiming on information and belief that Mr. Foo was the inventor, or at least a co-inventor, of some of the concepts disclosed in the '432 patent. (Exh. 1, at 11-14.) Ricoh promptly subpoenaed Mr. Foo as a fact witness on May 3 (Exh. 2), and on May 19, 2006, defendants produced some documents, as well as a privilege log. (Exh. 3). On May 22, Ricoh's counsel challenged the assertion of privilege (Exh. 4), and the next day defendants' counsel (Ms.

Hon. Edward M. Chen
August 10, 2006
Page 2

DeMory) responded that “[w]e have properly asserted privilege with regard to all logged communications and will not be producing any additional documents.” (Exh. 5). Mr. Foo was deposed on May 31, 2006, where he made several astonishing claims, including the fact that he was the sole inventor of claim 13 (the main claim asserted in this litigation), but had virtually no documents to back this assertion, and never told anyone about it his “invention.”

Until July 28, 2006, Ricoh understood that defendants were withholding certain Foo documents based upon an agreement of counsel that communications between non-testifying experts and counsel need not be logged. This agreement was memorialized in the Stipulated Order of July 5, 2006, which provides, in relevant part:

The parties agree that documents responsive to any document request made in this litigation that fall within the exceptions of paragraph 2(b), or that post-date the filing of Ricoh’s Complaint and are communications exclusively between client and trial counsel, between employees of a party for the purpose of obtaining information for trial counsel, or trial counsel and non-testifying experts (who are not otherwise employees of the client) and that have been withheld by any party based on privilege, need not be logged, and that the failure by any party to serve such a log is not a waiver of any privilege.

During a meet and confer on July 28, however, Ricoh learned that the communications between Mr. Foo and defendants’ counsel were not Rule 26(b)(4)(B) communications between a non-testifying expert and counsel, but instead were ordinary (and discoverable) communications between a percipient third party and counsel. For example, defendants recently served an expert report by Dr. Mitchell that revealed that Dr. Mitchell was relying upon several conversations with Mr. Foo.¹ Based upon the reliance by defendants’ expert upon the conversations with Mr. Foo, Ricoh sought clarification of the basis for the assertions of privilege of the Foo documents, but defendants refused to clarify their log. As a result of Ms. DeMory’s letter of May 23 (Exh. 5) and the July 5, 2006 Stipulated Order, Ricoh’s counsel had previously been led to believe that the documents on the Foo privilege log were communications between a non-testifying expert and counsel. During the July 28 and August 4, 2006 meet and confers, however, defendants’ counsel admitted that, contrary to the implication in defendants’ May 23 letter, the withheld documents related to facts from a percipient witness regarding events back in the 1980s. It appears that these documents are not the result of any legitimate expert consulting in April and May 2006, which would be protected from disclosure by the July 5 Order. Instead, it appears that the logged documents are nothing more than emails between defendants’ attorneys and a third party fact witness.

The withheld documents are obviously relevant, especially because Mr. Foo is the sole source of information for an important aspect of defendants’ invalidity argument. Ricoh is entitled to examine the withheld documents to determine whether there are variances between

¹ Dr. Mitchell’s expert deposition is scheduled for August 18, 2006. Ricoh hopes to resolve this dispute and obtain the underlying documents by August 17.

Hon. Edward M. Chen
August 10, 2006
Page 3

what he told defendants' attorneys, and what he may have told defendants' experts, and whether those experts misunderstood him. Ricoh is also entitled to know how much he was paid for his "consulting" so the jury may weigh Mr. Foo's credibility.

The parties agree that "[t]he party asserting the privilege must make a *prima facie* showing the privilege protects the information the party intends to withhold." *United States v. Bergonzi*, 216 F.R.D. 487, 493 (N.D. Cal. 2003) (Jenkins, J.). Communications, including emails, between third party fact witnesses and trial counsel are not protected from disclosure by the attorney work product privilege. *See Petition of Bloomfield S.S. Co.*, 42 F.R.D. 348, 350 (S.D.N.Y. 1994) (refusing "[t]o expand the protection of privilege now afforded to attorney-client communications so as to embrace communications between an attorney and a fact witness").

Defendants' mere retention of Mr. Foo as a non-testifying expert under Rule 26(b)(4)(B) does not transform his status as an ordinary fact witness. This Court has held that "Rule 26(b)(4)(B), however, does not address itself to the expert whose information was not acquired in preparation for trial but rather because he was an actor or viewer with respect to the transactions or occurrences what are part of the subject matter of the lawsuit. Such an expert should be treated as an ordinary witness." *Atari Corp. v. Sega of America*, 161 F.R.D. 417, 421 (N.D. Cal. 1994) Where, as here, defendants have "retained" as a "consultant" a former employee of a co-owner of the patent in suit, and used that "consulting relationship" to avoid discovery, such actions are contrary to public policy. *Id.* ("Additionally, public policy disfavors the utilization of an adversary's former employees as experts in order to stunt discovery.") Defendants have not disputed that the items on the Foo privilege log are communications relating to his claim that his is a co-inventor of the '432 patent, and *not* related to any expert opinion. Indeed, on August 4, defendants' counsel told Ricoh's counsel that their primary basis for refusing to produce the documents is because they think this request is too late, *not* because they think that the documents really are privileged. This Court should reject such sharp practice. The case law makes clear that such communications between a fact witness and defendants' counsel are not privileged, and they are not protected from discovery by Rule 26(b)(4)(B) because these communications do not relate to information acquired in preparation for trial.

During the meet and confers, defendants' counsel conceded that the logged communications are relevant. Defendants did not seriously dispute that the withheld communications did not fall within the "non-testifying expert" exception in the July 5 Order. Nor did defendants dispute that the reliance by their experts upon Mr. Foo, and the experts conversations with Mr. Foo, make these communications an important issue. Instead, defendants argued during the meet and confers that Ricoh's request is untimely, because discovery closed two months ago. This argument fails for three reasons. First, Ricoh did not learn until the July 28, 2006 meet and confer that the withheld documents were not being withheld pursuant to the "non-testifying expert" exception, but instead on an improper basis – simply because they were communications between counsel and a third party witness. Second, the issue is relevant because defendants' experts elected to speak to and rely upon their conversations with Mr. Foo. Had defendants' experts not done so, the issue would not have been raised. Third, defendants

Hon. Edward M. Chen
August 10, 2006
Page 4

repeatedly have sought and obtained the right to continue to pursue discovery after the cut-off, and there is no undue prejudice occasioned by Ricoh's request, especially when Ricoh discovered less than two weeks ago that the basis for defendants' privilege claim was unfounded.

Ricoh's request should be granted because it is discrete, because defendants have acknowledged that the original basis of the withholding of documents was not accurate, and because the information is relevant.

Statement of Simon Foo and Howrey²

This motion is untimely. There is no question that Ricoh has decided to pursue this issue now in a transparent effort to deflect the Court's attention from the serious issues raised in the Defendants' letter brief on the documents Ricoh has improperly withheld (not to mention occupying Defendants' attorneys during a very busy period, where there are ten expert depositions scheduled in the next two weeks and dispositive motions due next Friday). Ricoh's pure tactical rationale in bringing this motion becomes evident when reading its moving portion above — there is no clear statement of the relief it seeks.

The motion can and should be rejected on the sole ground of untimeliness. As evidenced on the face of its motion (referencing May communications and a May deposition), Ricoh has had full knowledge of the facts that form the basis for this request since long prior to the deadline for filing this motion. Ricoh opted not to do so at the appropriate time, and is only doing so now to deflect attention from its own bad acts. As the Court is aware from prior motions, Ricoh has hidden the existence of relevant documents through failure to disclose them on a privilege log — and given that Ricoh only recently provided that log (under Court order), Defendants are moving in a separate joint letter for the production of documents Ricoh has withheld on spurious claims of privilege.

This trumped-up motion is completely different — Ricoh has been aware of *all* of the facts relevant to this motion for quite some time. It deposed Dr. Foo for six hours, and even asked questions of Dr. Foo during that deposition regarding his consulting arrangement with Howrey. It has received hundreds of pages of documents from Dr. Foo. And, most importantly, it received the privilege log at issue here almost three months ago, which, unlike Ricoh's shifting sands approach to logs (i.e., first providing no privilege log at all and then serving supplemental and revised supplemental logs when the late log is challenged), has not changed one bit. It is plain that Ricoh does not actually need the information it claims; if it did, it would have moved for the information at the appropriate time (and, indeed, it even questioned the Foo log at the end

² The documents Ricoh seeks to compel have not been withheld as privileged by the Customer Defendants or Synopsys, but by Simon Foo (documents 20-22 and 24-28) (who is represented by Howrey) and Howrey (documents 1-19 and 23). That said, Howrey, on behalf of itself and Dr. Foo, its client, will respond to the above motion.

Hon. Edward M. Chen
August 10, 2006
Page 5

of May, but apparently was satisfied with the answers). It simply wants to distract all concerned with a frivolous motion.

The Court's most recent scheduling order (*Synopsys* Dkt. No. 354) set the discovery motion cutoff as June 7, 2006, in compliance with Civil Local Rule 26-2, which provides that "no motions to compel fact discovery may be filed more than 7 court days after the fact discovery cut-off..." Civ. L.R. 26-2. Amazingly, Ricoh states that Defendants' reliance on such Court-ordered deadlines and the Local Rules is a "sharp practice," but this exact argument has recently been rejected by this Court. See *Digital Envoy, Inc. v. Google, Inc.*, 2006 U.S. Dist. LEXIS 24865 at *18-*19 (N.D. Cal. Mar. 28, 2006) (rejecting argument that reliance on Civ. L.R. 26-2 was a "sharp practice" and denying motion to compel as untimely). Ricoh simply has no excuse for waiting so long past the discovery motion cutoff to bring this motion. As Exhibits 4 and 5 show, the precise issue raised now was first raised by Ricoh on May 22, to which a response was given on May 23. Ricoh failed to pursue the issue either at that time or after Dr. Foo's deposition, during which substantial testimony was taken about his consulting relationship with Howrey. (Ex. 6 at 17:15-19:20). Indeed, at his deposition, Dr. Foo refused to answer on work product grounds the amount of money Howrey had provided him (*id.* at 18:12-19:6; 21:7-11) — the exact question on which Ricoh now claims to seek an answer through production of the withheld documents. Ricoh was well aware that documents and information were being withheld by Dr. Foo and Howrey prior to the discovery motion cut-off in June. It failed to bring a motion to compel then, and should not be allowed to bring a motion to compel now.

Ricoh makes three arguments to excuse its tardiness. None is persuasive. First, it says that it was under a misapprehension about the rationale for the withholding of the logged documents. This is simply wrong. The Foo privilege log makes clear that certain documents were withheld on work product grounds because they "reflect[] litigation strategy of Howrey attorneys," and others were withheld on attorney/client (and work product) grounds because they were confidential communications regarding Ricoh's subpoena of Dr. Foo. This rationale has never changed. There was nothing misleading in the May 23 letter, nor any change in position during the meet and confer. The only thing that has changed is Ricoh's tactical calculation — it is now in Ricoh's interest, for whatever reason, to raise this issue.

Indeed, Ricoh's contention above that: "During a meet and confer on July 28, however, Ricoh learned that the communications between Mr. Foo and defendants' counsel were not Rule 26(b)(4)(B) communications between a non-testifying expert and counsel, but instead were ordinary (and discoverable) communications between a percipient third party and counsel" is nonsensical fiction. First, it is unsupported by any facts. Second, Ricoh always knew that Dr. Foo had factual information — as it states above, "Ricoh promptly subpoenaed Mr. Foo as a fact witness on May 3." Ricoh was fully aware of Dr. Foo's relationship to the facts of this case well before the Defendants — for instance, a Ricoh attorney spoke on two occasions with Dr. Foo as early as late 2002 or early 2003 (Ex. 6 at 19:21-20:13, 106:20-107:12), and documents produced by Ricoh reflect work he did on the KBSC system. Third, Ricoh had a full and fair opportunity to question Dr. Foo about all facts (including any he could have shared with either Dr. Mitchell or Howrey). Thus, going to the merits, Ricoh already has all the information to which it is

Hon. Edward M. Chen
 August 10, 2006
 Page 6

entitled, and Ricoh's claim that it just uncovered a sinister plan to hide information is simply trumped-up and false.

Ricoh's second excuse for its belated filing is that Defendants' experts spoke to and relied upon Dr. Foo. This does not turn a fact discovery issue (i.e., one on which a motion needed to be filed in June) into an expert discovery issue (i.e., one on which discovery is still open). Ricoh utilized its opportunity to take fact discovery of Dr. Foo to the fullest, obtaining six hours of sworn testimony. (*See* Ex. 6) The fact that experts in this case have spoken to Dr. Foo does not change this fact. Ricoh can ask Dr. Mitchell what he was told by Dr. Foo;³ it can impeach that information (should it be appropriate) with Dr. Foo's deposition testimony.⁴ There is simply no need to invade the work product of Howrey attorneys, or to pierce Dr. Foo's attorney/client privilege.

The final excuse by Ricoh is that Defendants have continued discovery after the cutoff. This is a non-sequitur. The discovery Defendants have obtained since the cutoff is due directly to the comprehensive motion to compel that Defendants *timely* filed on June 7. Ricoh elected not to file any motion on that date. The fact that Defendants *complied* with the Court's scheduling order and the Local Rules cannot possibly excuse Ricoh's *failure* to do the same. Ricoh's failure to raise this issue until two months after the discovery motion cutoff is fatal.

Ricoh fares no better on the merits. First, Ricoh does not really address the merits and it does not even articulate which documents it seeks.⁵ Second, Ricoh has several facts wrong,⁶ and

³ The Court may be interested to know that, at least as of the writing of this response, Ricoh has refused to commit to taking the deposition of Dr. Mitchell, and has already foregone the deposition of another one of Defendants' invalidity experts.

⁴ Of course, this is not to suggest that there is anything remotely interesting in the withheld documents. Indeed, as the log makes clear, and as was already explained to Mr. Brothers, they simply reflect the "who, what, where and when" of Howrey's work product investigation in this case and/or communications with its client, Dr. Foo. The documents were withheld to protect Mr. Foo's attorney/client privilege and Howrey's litigation strategy — the very types of documents a privilege log is designed for. By contrast, Ricoh's utter *failure* to inform Defendants of the existence of certain documents until the bitter end of discovery (and beyond) was clearly designed to hamper the defense of this case, and even when it served a privilege log, Ricoh improperly withheld documents, as detailed in the separate letter brief.

⁵ For instance, does Ricoh want *all* documents on the Foo log produced, including those on which attorney/client privilege was claimed? If so, on what basis does it challenge the assertion of attorney/client privilege? And if it does so, how can Ricoh make a principled distinction between the privilege claimed by Dr. Foo and Howrey and that claimed by Ricoh/KBSC/Dickstein Shapiro on conversations with Dr. Kobayashi, another third party fact witness who is also a client of counsel to this case? It cannot. If the documents on the Foo privilege log are to be produced, all communications between Dickstein Shapiro and Dr. Kobayashi should be produced as well, and Defendants request that the Court consider this potential remedy should it decide to grant Ricoh's motion.

⁶ Like the rest of the Dr. Foo story recounted by Ricoh above, Ricoh's contention that Dr. Foo was an ICC employee is unsupported and unsupportable. Ricoh also suggests that Dr. Foo was improperly retained by Howrey to shield

Hon. Edward M. Chen
 August 10, 2006
 Page 7

makes assertions that simply are not true. The documents on the Foo log are properly withheld, and nothing undersigned counsel said at the meet and confer even hinted that this was not the case. On the face of the log, the attorney/client privilege applies to documents 20-22 and 24-28, since it is obvious that Howrey represents Dr. Foo — see Exhibit 6 at 21:12-20 — and Ricoh makes no argument to the contrary. Similarly, the log demonstrates that the work product protection afforded by Rule 26(b)(3) applies to documents 1-19 and 23. Discovery of work product is permissible *only* upon a showing of substantial need and undue hardship — and even then not if the work product reflects attorney “mental impressions, conclusions, opinions, or legal theories,” as the log demonstrates. Finally, Ricoh has not attempted to make any showing of substantial need or undue hardship (nor could it given that it deposed Dr. Foo for six hours), nor has it challenged the assertion on the log that the withheld work product documents reflect the legal strategy of Howrey attorneys. Thus, even if the Court were inclined to reach the merits of this motion, the motion would still have to be denied.

Ricoh’s Reply

Defendants do not dispute Ricoh’s showing that, under the case law, the Foo communications with the Howrey firm or defendants’ experts are not protected from disclosure by the attorney work product doctrine. Even if the logged documents contained work product, that status was lost when defendants’ counsel deliberately shared them with a duly subpoenaed third party fact witness. By definition, the communications with Mr. Foo are not work product. Nor do defendants dispute that, under *Atari Corp. v. Sega of America*, 161 F.R.D. 417, 421 (N.D. Cal. 1994), their assertion of privilege regarding factual communications with a third party is legally unsupportable and inconsistent with public policy. Thus, Ms. De Mory’s assertion on May 23 that they “properly asserted privilege” over these documents is simply wrong.⁷

factual information from discovery. This is nonsense — Ricoh obtained ample factual discovery from Dr. Foo, a non-party to this litigation. Nothing has been shielded. Dr. Foo was deposed under oath for six hours; hundreds of pages of documents were produced (including any and all documents in Dr. Foo’s possession that existed prior to the commencement of the consulting arrangement); and the only thing withheld were a handful of communications reflecting attorney/client communications and work product, which, unlike Ricoh’s practice in this case, were disclosed to Ricoh via an adequate privilege log.

⁷ Defendants now attempt to distinguish between the documents that were withheld based upon the now-repudiated basis of work product, and a few documents on which they claim are properly withheld on the basis of attorney-client privilege. During the meet and confers, defendants made no such distinction between the documents and the privilege claims, and stated that they would be opposing this motion solely based upon their view that the motion is untimely. Because defendants took such a position and also refused to amend the log to explain the basis of their claims, they should be estopped from now relying on such vague assertions. In any event, the attorney-client privilege claim with a third party is inconsistent with *Atari*, where Sega contended that the documents were protected by the attorney-client privilege. The Court rejected this argument and held that factual communications with third party witnesses could not be cloaked by any privilege. 161 F.R.D. at 421 (holding that, where a so-called “expert” like Mr. Foo is “an actor or viewer with respect to transactions or occurrences that are part of the subject matter of the lawsuit[,] . . . [s]uch an expert should be treated as an ordinary witness.”) See also *Barkwell v. Sturm Ruger Co.*, 79 F.R.D. 444, 446 (D.Alaska 1978) (holding that an expert’s opinions “developed prior to his association with defendant and are routinely discoverable” and that “Rule 26(b)(4)(B) by its very terms . . . does not

Hon. Edward M. Chen
August 10, 2006
Page 8

On the merits, there is no legitimate dispute that the basis for withholding the Foo documents was proper, because it was not. Defendants have cited no case law and have identified no facts to support the withholding of these documents. And although defendants point out that Ricoh has had an opportunity to depose Mr. Foo, they obscure the fact that they precluded Ricoh from questioning the witness on the substance of his so-called consulting (Ex. 6, Foo Tr. at 18-19). In addition, Ricoh still does not have the documents evidencing Mr. Foo's exchanges with defendants' counsel and experts.

Defendants argue (at footnote 5) that Ricoh's recitation of the facts regarding Mr. Foo is "unsupported and unsupportable." Ricoh had hoped to avoid burdening the Court with excessive documents, but defendants' challenge to our credibility cannot be ignored. Because defendants have objected to our addition of supporting cites to our factual statements in our opening section, attached as Exh. 7 is the first two paragraphs of our opening section of this joint letter, annotated with supporting citations to the Foo transcript and other documents.

This motion is not untimely, because it was triggered by expert discovery and defendants' non-compliance with the July 5 stipulated order.⁸ Between the end of May and late July, Ricoh thought that the basis for defendants' privilege claims over the Foo documents was because Mr. Foo had been retained as a non-testifying consultant. This perception was reinforced by defendants' counsels' instructions during Mr. Foo's deposition to not answer questions regarding his consulting on the basis of work product (Exh. 6, at 18-19), as well as the provision in the July 5 stipulated order that such communications with non-testifying experts need not be produced. Only after defendants' expert, Dr. Mitchell, explicitly stated in his report that he was relying upon conversations with Mr. Foo (which conversations presumably were part of the "consulting" work on which Mr. Foo had been instructed not to testify about), did Ricoh realize that the assertion of privilege was improper. As a result, in July we challenged defendants to explain the basis of privilege, and their response was to concede that the documents really are not privileged, but because defendants had succeeded in misleading Ricoh for less than two months, defendants would not produce them.

Even if this motion was to be considered to be past the deadline, the requested relief should still be granted. This Court repeatedly has permitted discrete discovery in this case past the fact discovery deadline, including Ricoh's discovery on the newly disclosed products, defendants' discovery of the KBSC documents, and defendants' insistence that they depose the

apply to facts known or opinions held which were not acquired or developed in anticipation of litigation"). Likewise, defendants' assertion that Mr. Foo and Dr. Kobayashi are similarly situated is simply incorrect. Dr. Kobayashi is the named co-inventor of the '432 patent, has had a longstanding common interest with Ricoh, and has been represented by counsel solely as a fact witness for many years. Mr. Foo has no common interest with defendants or any other basis for asserting privilege with respect to his alleged involvement in the development of the '432 patent.

⁸ Defendants have issued numerous subpoenas after the May 31 discovery cutoff in conjunction with expert discovery.

Hon. Edward M. Chen
 August 10, 2006
 Page 9

University of South Carolina.⁹ The Court should do so here, especially when the need for the remedy is occasioned by defendants' misleading actions; where the remedy is discrete; the time period between the misrepresentation and Ricoh's discovery of the facts is so short (two months); where Ricoh diligently pursued its rights once it learned that the privilege assertion was improper; where there is adequate time before trial; and where Defendants have shown no prejudice, let alone undue prejudice, that they would suffer if the Court was to grant Ricoh the requested relief. *See, e.g., Int'l Truck and Engine Corp. v. Int'l Truck Intellectual Prop. Co.*, 2004 U.S. Dist. LEXIS 27447, *13 (N.D.Ind. 2004) (granting motion to compel filed after the end of fact discovery and prior to the filing of dispositive motions because of a lack of "aggravating circumstances" that might prejudice the non-moving party). In fact, defendants' assertion (at footnote 4) that the withheld documents do not contain "anything remotely interesting," if true, confirms that there is no prejudice in producing them. Ricoh expects, however, that the documents will show inconsistencies in Mr. Foo's remarkable claim of inventorship, and thus will weaken one of defendants' main defensive arguments.

Ricoh's remedy is simple: The documents on the Foo privilege log should be produced. In addition, the Court should also compel production of additional unlogged and unproduced Foo documents, including the consulting agreement, invoices and payments, and any other documents between or among Mr. Foo, defendants' counsel, and defendants' experts.

Respectfully submitted,

By: /s/ Ethan B. Andelman
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 Counsel for SYNOPSYS, INC. and
 Customer Defendants AEROFLEX
 INCORPORATED, AEROFLEX
 COLORADO SPRINGS, AMI
 SEMICONDUCTOR, INC., MATROX
 ELECTRONIC SYSTEMS, LTD.,
 MATROX RAPHICS, INC., MATROX
 INTERNATIONAL CORP., and
 MATROX TECH, INC.

By: /s/ Kenneth W. Brothers
 Kenneth W. Brothers
 Counsel for RICOH COMPANY, LTD

⁹ Even though defendants claimed the University's deposition was "critical" to their case, and had been scheduled for August 9, it was canceled by defendants on August 8.

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AEROFLEX COLORADO SPRINGS, INC.

9 UNITED STATES DISTRICT COURT
10 NORTHERN DISTRICT OF CALIFORNIA
11 SAN FRANCISCO DIVISION

12 RICOH COMPANY, LTD.,

13 Plaintiff,

14 vs.

15 AEROFLEX INCORPORATED, AMI
16 SEMICONDUCTOR, INC., MATROX
ELECTRONIC SYSTEMS LTD., MATROX
17 GRAPHICS INC., MATROX
INTERNATIONAL CORP., MATROX TECH,
18 INC., AND AEROFLEX COLORADO
SPRINGS, INC.

19 Defendants.

20 SYNOPSYS, INC.,

21 Plaintiff,

22 vs.

23 RICOH COMPANY, LTD.,

24 Defendant.

Case No. C03-04669 MJJ (EMC)

Case No. C03-02889 MJJ (EMC)

**FINAL INVALIDITY CONTENTIONS OF
SYNOPSYS AND THE CUSTOMER
DEFENDANTS PURSUANT TO PATENT
L.R. 3-3 AND L.R. 3-6**

1 Pursuant to Rules 3-3 and 3-6 of the Patent Local Rules of Practice in Civil Proceedings before
2 the United States District Court for the Northern District of California (“Patent L.R.”), Synopsys, Inc.
3 (“Synopsys”) and Defendants Aeroflex, Inc., Aeroflex Colorado Springs, Inc., AMI Semiconductor
4 Inc., Matrox Electronic Systems, Ltd., Matrox Graphics Inc., Matrox International Corp., and Matrox
5 Tech, Inc. (collectively, the “Customer Defendants”) submit the following Final Invalidity Contentions
6 (“Invalidity Contentions”) in response to the Disclosure of Asserted Claims and Final Infringement
7 Contentions (“Infringement Contentions”) served by plaintiff Ricoh Company, Ltd. (“Rico”) on
8 March 24, 2006. These disclosures incorporate the attached Exhibits 1 through 57.

9 Synopsys and the Customer Defendants base these Invalidity Contentions on their current
10 knowledge, understanding and belief as to the facts and information available as of the date of these
11 contentions. Synopsys and the Customer Defendants have not yet completed their investigation,
12 collection of information, discovery, or analysis relating to this action, and additional discovery may
13 require them to supplement, amend and/or modify these contentions. More specifically, Rico has not
14 produced all of the information responsive to Synopsys’ and the Customer Defendants’ discovery
15 requests. Synopsys and the Customer Defendants also continue to search for additional invalidating
16 prior art for the asserted claims of U.S. Patent No. 4,922,432 (the “‘432 patent”). Consequently, based
17 upon a showing of good cause, Synopsys and the Customer Defendants may subsequently seek an
18 order from the Court allowing them to amend, modify, or supplement these contentions within a
19 reasonable time after the discovery of any additional invalidating prior art.

20 Synopsys and the Customer Defendants make these disclosures relative to and based on
21 Rico’s Final Infringement Contentions. Certain references are included and certain features are cited
22 to as meeting particular elements of the asserted claims of the ‘432 patent only because Rico has cited
23 to similar portions of Design Compiler in its Final Infringement Contentions as evidence of
24 infringement. Nothing in these contentions or the accompanying charts should be construed to
25 constitute an admission that a particular element or limitation is met for infringement purposes by a
26 particular reference or by particular cited text. By including these citations and quotations in its
27 invalidity charts, Synopsys and the Customer Defendants are not conceding that the asserted claims of
28 the ‘432 patent can be read in the manner that Rico implicitly asserts or that the Court’s April 7, 2005

1 Claim Construction can be applied in the manner that Ricoh implicitly has done. Several such
2 examples include but are not limited to:

3 1. Ricoh claims that in Design Compiler, the “architecture independent actions and
4 conditions” limitation is satisfied by, among other things, register-transfer level specifications (RTL).
5 Synopsys and the Customer Defendants understand, however, that the Court’s Claim Construction
6 explicitly excludes RTL from the definition of “architecture independent actions and conditions.”
7 Nevertheless, Synopsys and the Customer Defendants have included RTL in certain claim charts,
8 because, if Design Compiler infringes because of its use of RTL as a design input, as set forth in
9 Ricoh’s infringement contentions, then the use of RTL in the noted prior art references would
10 demonstrate anticipation.

11 2. Similarly, Synopsys and the Customer Defendants have relied herein on references that
12 teach the use of local transformations because Ricoh claims in its infringement contentions that SOT
13 tricks meet the “rules” limitations of the asserted claims of the ‘432 patent.

14 3. Similarly, Synopsys and the Customer Defendants have relied herein on references that
15 include algorithmic cell selection methods based on Ricoh’s assertion that Design Compiler infringes
16 the asserted claims of the ‘432 patent.

17 4. Similarly, Synopsys and the Customer Defendants have relied herein on inferences that
18 do not include an explicit expert system or inference engine based on Ricoh’s assertion that Design
19 Compiler infringes the asserted claims of the ‘432 patent.

20 5. Similarly, Synopsys and the Customer Defendants have relied herein on references
21 relating to claim 14 to the extent that Ricoh claims that the output of Design Compiler is used in
22 creating mask data.

23 **I. DISCLOSURES UNDER PATENT L.R. 3-3(a) & 3-3(b).**

24 **A. INVALIDITY OF ‘432 PATENT UNDER 35 U.S.C. § 102(a), (b) or (e).**

25 Synopsys and the Customer Defendants contend that each of the asserted claims of the ‘432
26 patent (claims 13-17) is anticipated by one or more of the following items of prior art under Sections
27 102(a), (b) or (e).
28

1 **1. Patents.**

2 **a. U.S. Patent No. 4,703,435 to Darringer et al. (United States),**
3 **issued 10/27/87.**

4 **2. Printed Publications.**

5	1	M. R. Buric, C. Christensen, and T. G. Matheson, <i>The Plex Project: VLSI Layouts of Microcomputers Generated by a Computer Program</i> , Proc. International Conference on Computer Aided Design (ICCAD '83), pp. 49-50, 1983. (DEF022881 – DEF022882).
6	2	Camposano, R. et al., <i>Automatic Data Path Synthesis from DSL Specifications</i> , Proceedings of the IEEE Int'l Conf. on Computer Design (Oct. 1984), pp. 630-635. (DEF074758 – DEF074764).
7	3	Rosenstiel, W., et al., <i>Synthesizing Circuits from Behavioural Level Specifications</i> , Proceedings of the 7th Int 'l Conference on Computer Hardware Description Languages and their Applications (1985), pp. 391-403. (DEF072576 – DEF072588).
8	4	E.F. Girczyc & J.P. Knight, <i>An ADA to Standard Cell Hardware Compiler Based on Graph Grammars and Scheduling</i> , ICCD '84, 726-31 (1984). (DEF018132–DEF018139).
9	5	De Man, Rabaey, Six, <i>Cathedral II: A Synthesis and Module Generation System for Multiprocessor Systems on a Chip</i> Design Systems for VLSI Circuits, De Micheli, et al (eds.), 571-645 (1987). (DEF008189 – DEF008263).
10	6	De Man, Rabaey, Six, Claesen, <i>Cathedral-II: A Silicon Compiler for Digital Signal Processing</i> IEEE Design & Test, 13-25 (Dec. 1986). (DEF074642-DEF074655).
11	7	Gajski, D., et al., <i>Towards Intelligent Silicon Compilation</i> Design Systems for VLSI Circuits 365-383 (1987). (DEF007990 – 008008).
12	8	Nobuaki Kawato, et al., <i>DDL/SX: A Rule-Based Expert System for Logic Circuit Synthesis</i> , Proceedings of the Int'l Symposium on Circuits and Systems, 885-888 (1985). (DEF070832–DEF070835).
13	9	Tamio Mano, et al., <i>Knowledge-Based Expert System for Hardware Logic Design</i> , Proceedings of 1986 Joint [ACM-IEEE] Computer Conference, 979-986 (1986). (DEF070844–DEF070851).
14	10	Takao Saito, et al., <i>A Rule-Based Logic Circuit Synthesis System for CMOS Gate Arrays</i> , 23 rd Design Automation Conference, 594-600 (1986). (DEF018277–DEF018283).
15	11	Trickey, <i>Compiling Pascal Programs into Silicon</i> (July 1985). (DEF074780 – DEF074914).
16	12	P.G. Paulin, et al., <i>HAL: A Multi-Paradigm Approach to Automatic Data Path Synthesis</i> , 23 rd Design Automation Conference, 263-70 (1986). DEF000490–DEF000494).
17	13	THADDEUS J. KOWALSKI, <i>AN ARTIFICIAL INTELLIGENCE APPROACH TO DESIGN</i> (Kluwer Academic Publishers) (1985). (DEF007122–DEF007241).
18	14	T.J. Kowalaski, et al., <i>The VLSI Design Automation Assistant: From Algorithms to Silicon</i> , IEEE Design & Test 33-43 (1985). (DEF018108–DEF018118).
19	15	Michael C. McFarland & Thaddeus J. Kowalski, <i>Assisting DAA: The Use of Global Analysis in an Expert System</i> , 1986 ICCD 482-485 (1986). (DEF018403–DEF018406).
20	16	John A. Darringer, et al., <i>Logic Synthesis Through Local Transformations</i> , 25 IBM J. Res. & Dev. 272-280 (1981). (DEF016515–DEF016523).
21	17	William H. Joyner, Jr., <i>Technology Adaptation in Logic Synthesis</i> , 23 rd Design Automation Conference, 94-100 (1986). (DEF018087–DEF018093).
22	18	U. G. BAITLINGER, ET AL., <i>MEGA – Ein Modulares Entwurfssystem für Gate-Arrays</i> (1986). (DEF070977–DEF071027; DEF023296–DEF023346).

1	19	Marwedel, P., <i>The Mimola Design System: A Design System Which Spans Several Levels in Methodologies for Computer System Design</i> (Gilo, W., et al., eds.) (North Holland 1985) at pp. 223-237. (DEF072835-DEF072850).
2		
3	20	Marwedel, P., <i>The Mimola Design System: Tools for the Design of Digital Processors</i> , from 21 st Design Automation Conference (1984) at pp. 587-593. (DEF072569-DEF072575).
4	21	David Gregory, et al., <i>SOCRATES: A System for Automatically Synthesizing and Optimizing Combinational Logic</i> , 23 rd Design Automation Conference, 79-85 (1986). (SP04123-SP04129).
5		
6	22	Mitchell, T.M., et al., <i>A Knowledge-Based Approach to Design</i> , IEEE Workshop on Principles of Knowledge-Based Systems, Dec., 1984, pp.27-34.
7	23	Mitchell, T.M., et al., <i>A Knowledge-Based Approach to Design</i> , IEE Trans. On Pattern Analysis and Machine Intelligence, Vol. PAMI-7, No. 5, Sept., 1985, pp.502-510.
8	24	Shigeru Takagi, <i>Rule Based Synthesis, Verification and Compensation of Data Paths</i> , Proceedings of IEEE Conference on Computer Design, 133-138 (1984). (DEF071930-DEF071935).
9		
10	25	Shigeru Takagi, <i>Design Method Based Logic Synthesis</i> , Proceedings of Seventh Int'l Conference on Computer Hardware Description Languages and Their Applications, 49-63 (1985). (DEF071248-DEF071265).
11		
12	26	Trimeter Technologies, "Product Description: Logic Consultant" (1986), (MENT000014 - MENT000017).
13	27	Kobayashi, H., <i>A Knowledge-Based Approach to VLSI CAD</i> , AM, section RD-3 (1986). (KBSC000995 - KBSC001001).
14	28	Foo, Y.P.S. & H. Kobayashi, <i>A Knowledge-Based System for VLSI Module Selection</i> , IEEE Int'l Conf. Computer Design (ICCD), pp. 184-186 (Oct. 1986). (KBSC000855 - KBSC000995).
15	29	de Geus, Bartlett Cohen, and Hachtel, <i>Synthesis and Optimization of Multilevel Logic Under Timing Constraints</i> , IEEE Trans. on CAD of Integrated Circuits and Systems CAD-5, 4 (Oct. 1986), pp. 582-596 (DEF017626 - DEF017642).
16		
17	30	David Gregory, et al., "Automatic Generation of Combinatorial Logic from a Functional Specification", ISCAS, 986-989 (1984). (DEF017598 - DEF017602).
18	31	Gregory, Bartlett, De Geus, Hachtel, "SOCRAATES: A system for Automatically Synthesizing and Optimizing Combinatorial Logic" 23 rd DAC, 79-85 (1986). (SP04123 - SP04129).
19	32	de Geus & Cohen, "A Rule-Based System for Optimizing Combinational Logic," IEEE Design & Test of computers, 22-32 (Aug. 1985). (SP03943 - SP03953).
20	33	Thaddeus Julius Kowalski, <i>The VLSI Design Automation Assistant: A Knowledge-Based Expert System</i> , Carnegie-Mellon University PhD Thesis, April 1984.
21	34	Simoudis, E., Fickas, S., <i>The Application of Knowledge-Based Design Techniques to Circuit Design</i> , Proc. International Conference on Computer Aided Design (ICCAD '85), pp. 213-215, 1985.

3. Items Publicly Known or Used, or Offered for Sale.

The following logic synthesis systems are believed to have been in public use more than one year prior to January 13, 1988:

a. TRIMETER

The Trimeter system was publicly used and offered for sale prior more than one year before the filing date of the '432 patent. In particular, marketing literature was already being distributed for Logic Consultant as early as 1986.

1 **b. IBM EDS.**

2 The IBM EDS system was publicly demonstrated at the 20th Design Automation Conference in
3 Miami Beach, Florida in June of 1983, and shown to numerous potential customers that may have
4 hired IBM to produce designs for their ASICs. The system had been used to make over 90 chip
5 designs by 1984. Synopsys and the Customer Defendants are proceeding with discovery to confirm
6 these and other public uses and sales.

7 **c. MEGA.**

8 A paper describing the MEGA system was published in the Proceedings of the IEEE Int'l Conf.
9 On Computer Aided Design, which was held in Santa Clara, California in November of 1985.
10 Additionally, there was a presentation of the MEGA system related to this published paper at the same
11 conference. Synopsys and the Customer Defendants are proceeding with discovery to confirm these
12 and other public uses and sales.

13 **d. PLEX.**

14 PLEX was a project at AT&T Bell Labs. This system was published in the Proceedings of the
15 1983 Int'l Conference on Computer Aided Design in Santa Clara, California. On information and
16 belief, there were presentations of the PLEX system related to these published papers at the 1983
17 International Conference on Computer Aided Design. PLEX was demonstrated and presented to a
18 number of interested individuals and/or companies, including at least Coleco and National
19 Semiconductor, during tours of AT&T Bell Labs prior to the critical date of January 13, 1987. One
20 such presentation was videotaped and broadcast on television. Such presentations generally included
21 live demonstrations of the working system or screen shots of the working system. Synopsys and the
22 Customer Defendants are proceeding with discovery to confirm these and other public uses and sales.

23 **e. SOCRATES.**

24 SOCRATES was demonstrated publicly at the Design Automation Conference in Las Vegas,
25 Nevada in 1986. Beginning as a GE research project, SOCRATES papers were published and the
26 system shown to potential customers including CALMA and others prior to the critical date. GE
27 offered to sell SOCATES to Optimal Solutions by at least December of 1986 and sold the software to
28 the new company at its inception, prior to January 13, 1987. Development of SOCRATES also

1 occurred at public projects at Duke University and the University of Colorado. Synopsys and the
2 Customer Defendants are proceeding with discovery to confirm these and other public uses and sales.

3 **f. Berkeley Synthesis System.**

4 This is a public project at The University of California at Berkeley. Students and professors
5 used the system and published papers and theses regarding the system. On information and belief the
6 source code for the system was available to public via ftp download prior to the critical date of January
7 13, 1987 for anyone's use. In addition, the combination of BDSyn and MIS was demonstrated at a
8 NATO conference in Italy in mid-1986. Individuals from GE, Optimal Solutions used this code in
9 developing aspects of Synopsys' early products.

10 **g. DAA – CMU.**

11 CMU DAA was a public project at Carnegie Mellon University and sponsored by number of
12 companies. The CMU DAA system was delivered to its sponsors by at least 1987. Students and
13 professors used the system and published papers and theses regarding the system. This system was
14 published in the proceedings of numerous conferences and symposiums held in the United States
15 including: 20th Design Automation Conference held in Miami Beach, Florida, in June 1983; 22nd
16 Design Automation Conference in Las Vegas, NV in 1985; and the 1983 Int'l Symposium on Circuits
17 and Systems in Newport Beach, California, in May 1983. There were presentations of the CMU DAA
18 system related to these published papers at their respective conferences. CMU DAA was publicly
19 demonstrated and presented to a number of interested companies prior to the critical date of January
20 13, 1987. Such presentations included screen shots of the working system. Public benchmarks for
21 comparing automatic logic synthesis systems were also run through the CMU DAA system and the
22 results disseminated. Synopsys and the Customer Defendants are proceeding with discovery to
23 confirm these and other public uses and sales.

24 **h. DAA – ATT.**

25 AT&T DAA was a public project at AT&T. There were several published papers regarding
26 the system. This system was published in the proceedings of numerous conferences and symposiums
27 held in the United States including: 23rd Design Automation Conference in Las Vegas, NV in 1986;
28 and the 1986 Int'l Conference on Computer Design in Port Chester, NY in October, 1986. There were

1 presentations of the AT&T DAA system related to these published papers at their respective
2 conferences. AT&T DAA was publicly demonstrated and presented to a number of interested
3 companies prior to the critical date of January 13, 1987. Such presentations included screen shots of
4 the working system. Public benchmarks for comparing automatic logic synthesis systems were also
5 run through the AT&T DAA system and the results disseminated. Synopsys and the Customer
6 Defendants are proceeding with discovery to confirm these and other public uses and sales.

7 **i. Fujitsu DDL/SX.**

8 Fujitsu DDL/SX was developed at Fujitsu Ltd. in Kawasaki, Japan and implemented LISP and
9 C-Prolog. This system was published in the proceedings of numerous conferences and symposiums
10 including: IFIP Sixth International Symposium on Computer Hardware Description Languages and
11 their Applications in Pittsburg, Pennsylvania in May 1983; Proceedings of the Fall Joint Computer
12 Conference 1986, p.979-986, in November 1986 in Dallas, Texas; the 16th Design Automation
13 Conference held in San Diego, California in June of 1979; 18th Design Automation Conference held in
14 Nashville, Tennessee in June 1981; the 19th Design Automation Conference held in Las Vegas,
15 Nevada in June 1982; 23rd Design Automation Conference held in Las Vegas, Nevada in 1986; and
16 The International Conference On Computer Aided Design in Santa Clara, California in 1985.
17 Synopsys and the Customer Defendants are seeking discovery of additional information regarding
18 other public use, demonstration, or sale of the system.

19 **j. CHIPPE.**

20 Chippe was initially developed at the University of Illinois and later at Penn State and the
21 University of California at Santa Barbara, the work was supported through funding from Gould
22 Foundation and AT&T Bell Laboratories. Students and professors used the system and published
23 papers regarding the system. This system was published in the Proceedings of the 23rd Design
24 Automation Conference held in Las Vegas, NV in June of 1986, and the 24th Design Automation
25 Conference held in Miami Beach, Florida in June of 1987. Chippe was demonstrated and presented to
26 AT&T prior to the critical date of January 13, 1987. Synopsys and the Customer Defendants are
27 seeking discovery of additional information regarding other public use, demonstration, or sale of the
28 system.

1 **k. HAL.**

2 HAL was developed at Carleton University with funding from BNR and The Natural Sciences
3 and Engineering Research Counsel of Canada. This system was published in the Proceedings of the
4 IEEE Int'l Conf. On Computer Design, which was held in Port Chester, New York in October of 1984
5 and the 23rd Design Automation Conference held in Las Vegas, Nevada in June of 1986. Synopsys
6 and the Customer Defendants are seeking discovery of additional information regarding other public
7 use, demonstration, or sale of the system.

8 **l. NTT VLSI-DE.**

9 The NTT VLSI-DE system was developed at NTT in Tokyo, Japan, and implemented in LISP.
10 This system was published in multiple proceedings including the IEEE Int'l Conf. On Computer
11 Design, which was held in Port Chester, New York in October of 1984. Synopsys and the Customer
12 Defendants are seeking discovery of additional information regarding other public use, demonstration,
13 or sale of the system.

14 **m. DAGON.**

15 DAGON was developed at AT&T with influence, and is possibly derived, from SOCRATES
16 and the Berkeley Synthesis Project. The system was published in the Int'l Conference on Computer-
17 Aided Design, which was held in Santa Clara, California, on November 9-12, 1986, and the 24th
18 Design Automation Conference held in Miami Beach, Florida in June of 1987. On information and
19 belief, DAGON was presented to interested companies prior to the critical date of January 13, 1987.
20 Synopsys and the Customer Defendants are seeking discovery of additional information regarding
21 other public use, demonstration, or sale of the system.

22 **n. FLAMEL.**

23 FLAMEL was developed and used at Stanford University under a DARPA contract. Students
24 and professors used the system and freely published articles and dissertations regarding the
25 unclassified project by at least the Summer of 1985. Synopsys and the Customer Defendants are
26 seeking discovery of additional information regarding other public use, demonstration, or sale of the
27 system.

o. CATHEDRAL.

Cathedral was jointly developed at the University of California at Berkeley, Phillips Research Lab, Interuniversity Micro Electronics Center, and Katholieke University, the work was sponsored by the EC under ESPRIT 97 contract. Students and professors used the system and published papers regarding the system. This system was published in the Proceedings of the IEEE Int'l Symposium On Circuits and Systems, which was held in San Jose, California in May of 1986 and the Int'l Conference on Computer-Aided Design, which was held in Santa Clara, California, on November 9-12, 1987. Synopsys and the Customer Defendants are seeking discovery of additional information regarding other public use, demonstration, or sale of the system.

p. CADDY.

CADDY was developed at University of Karlsruhe with funding from Seimens and the DMFT of Germany. This system was published in multiple proceedings including the IEEE Int'l Conf. On Computer Design, which was held in Port Chester, New York in October of 1984, and the 22nd and 23rd Design Automation Conferences held in Las Vegas, Nevada in 1985 and 1986. There were presentations of the CADDY system related to these published papers at their respective conferences. Additionally, there were presentations of the CADDY system to U.S. corporations including, at least, IBM in 1984 and 1986. Synopsys and the Customer Defendants are seeking discovery of additional information regarding other public use, demonstration, or sale of the system.

q. Carleton ELF.

ELF was developed at Carleton University with funding from Northern Telecom Electronic and the Natural Sciences and Engineering Research Counsel of Canada. This system was published in the Proceedings of the IEEE Int'l Conf. On Computer Design, which was held in Port Chester, New York in October of 1984, and IEEE Int'l Symposium On Circuits and Systems, which was held in Philadelphia, Pennsylvania in May of 1987. Synopsys and the Customer Defendants are seeking discovery of additional information regarding other public use, demonstration, or sale of the system.

r. MIMOLA/ VSYNTH.

MIMOLA/VSYNTH was developed at Honeywell Inc., in Bloomington, MN and the University of Kiel. Professors and students, and Honeywell used the system and published papers,

thesis and manuals regarding the system. This system was published in multiple proceedings including: the 16th Design Automation Conference held in San Diego, California in June 1979; the 21st Design Automation Conference held in Albuquerque, New Mexico in June 1984; 23rd Design Automation Conference held in Las Vegas, Nevada in 1986; the 17th Annual Microprogramming Workshop, held in October and November of 1984 in New Orleans, LA, and the Proceedings of the 20th Annual Workshop on Microprogramming held in Colorado Springs, Colorado in December of 1987. Synopsys and the Customer Defendants are seeking discovery of additional information regarding other public use, demonstration, or sale of the system.

s. VEXED.

VEXED, which stands for VLSI Expert Editor, was developed at Rutgers University in New Brunswick, New Jersey by Professors Tom M. Mitchell, Jeffrey S. Shulman and Louis I. Steinberg. Students publicly used the VEXED system in a VLSI design class to do homework assignments. Moreover, the system was published in multiple proceedings including the Symposium on Integrated and Intelligent Manufacturing at the 1986 ASME Winter Annual Meeting held in Anaheim, California in December 1986, and the AAAI-87 Sixth National Conference on Artificial Intelligence held in Seattle, Washington in July 1987, as well as in IEEE journals. Synopsys and the Customer Defendants are seeking discovery of additional information regarding other public use, demonstration, or sale of the system.

4. Offer for Sale and Sale of the Claimed Invention (102(b)).

Synopsys and the Customer Defendants also contend that the claimed invention at the very least had been constructively reduced to practice when it offered for sale and sold by International Chip Corporation (“ICC”) to Ricoh Company, Ltd. (“Rico”) in a General Contractual Agreement of Understanding dated December 15, 1986 (the “Understanding”). (KBSC000005-8.) The Understanding described an exchange of technology between ICC and Ricoh; ICC agreed to license Ricoh the right to use its “pre-stage system design software for the knowledge-based silicon compiler at no cost” and “to use [its] post-stage chip layout software for the knowledge-based silicon compiler within the facilities of ICC.” (Section III(3) & (4), KBSC000005.) In return for this technology, ICC obtained access to Ricoh’s standard design rules and cell libraries at no cost. (Section III(1) & (2),

KBSC00005.) Although the Understanding contemplated that ICC and Ricoh would also “execute a separate individual joint development agreement and jointly develop CAD tools that employ AI,” on information and belief, that agreement addressed a commercial version of the knowledge-based silicon compiler that would be jointly owned by the parties. (Section VII(2), KBSC00006.) (*See also* KBSC 00009-27.)

B. INVALIDITY OF ‘432 PATENT UNDER 35 U.S.C. § 102(f).

Synopsys and the Customer Defendants contend that each of the asserted claims of the ‘432 patent is invalid because the named inventors, Hideaki Kobayashi and Masahiro Shindo, did not themselves invent the subject matter that has been patented. Synopsys and the Customer Defendants are informed and believe that one or more of the following individuals should have been named as joint inventors, at a minimum: Tooru Ozeki, David Dunn, Thomas Hersch, Stuart Anderson, Frans Brinkman, Ricky Darwin, Yoon Pin Foo, Richard Ulmer, Zenji Oka, Mr. Suehiro, Robert D. Ferrell, Jaymin Yon.

For example, Dr. Foo worked in collaboration with Kobayashi from 1982 to 1987, as an undergraduate and graduate student in the Department of Electrical and Computer Engineering at the University of South Carolina. Indeed, Kobayashi was Dr. Foo’s advisor for his M.S. thesis. On information and belief, much of the academic research that Dr. Foo conducted alone and in collaboration with Kobayashi led to the conception of the invention claimed in the ‘432 patent. In 1984, he wrote his M.S. thesis entitled “Managing VLSI Design Data with a Relational Database System,” which dealt with the management of VLSI cell libraries using the INGRES relational database management system. Recognizing that commercial relational database management systems were ill-suited to managing complex VLSI design data, Dr. Foo then turned his research and development efforts towards using a frame-based scheme, which would manage VLSI cell libraries as a hierarchically nested set of “design frames.” He wrote a frame-based database manager tool called FAME for this purpose, which was coded in the C language and ran on a VAX-11/780 computer.

Dr. Foo subsequently published his work, listing Kobayashi as a co-author, in a paper entitled “A Framework for Managing VLSI CAD Data,” *in* Proceedings of the 1st International Conference on Applications of Artificial Intelligence to Engineering Problems, Southampton, England, Vol. II, 889-

1 98 (Springer Verlag, April 1986) (KBSC000904-913) [hereinafter, Foo86-a]. On information and
 2 belief, the results of Dr. Foo's research and development on FAME contributed to at least the
 3 conception of the step of "storing data describing a set of available integrated circuit hardware cells for
 4 performing the actions and conditions defined in the stored set" in claims 13-17 ('432 patent, 16:39-
 5 41) because the frame-based scheme made the VLSI CAD data more readily usable by chip designers.
 6 Indeed, Dr. Foo's article alluded to the next planned step in his research: "Future extensions to FAME
 7 include an interface to an *inference engine* for VLSI CAD applications." *Id.* at 894 (KBSC000909)
 8 (emphasis added).

9 Dr. Foo also researched and developed an inference engine for selecting VLSI cells, employing
 10 heuristic rules that embody the knowledge of expert VLSI designers. Dr. Foo wrote this software tool,
 11 called NEPTUNE, in the C language, and it also ran on a VAX-11/780 computer. On information and
 12 belief, the coding for NEPTUNE was completed by mid-1986. Dr. Foo published his research and
 13 development work on NEPTUNE in a paper listing Kobayashi as a co-author and entitled "A
 14 Knowledge-Based System for VLSI Module Selection," in Proceedings of the IEEE International
 15 Conference on Computer Design: VLSI in Computers (ICCD '86), Port Chester, New York 184-87
 16 (IEEE Computer Society, October 1986) (KBSC000914-17) [hereinafter, Foo86-b].

17 On information and belief, the results of Dr. Foo's research and development on NEPTUNE
 18 contributed to at least the conception of the steps of "storing in an expert system knowledge base a set
 19 of rules for selecting hardware cells to perform the actions and conditions" and "selecting from said
 20 stored data for each of the specified definitions a corresponding integrated circuit hardware cell for
 21 performing the desired function of the application specific integrated circuit, said step of selecting a
 22 hardware cell comprising applying to the specified definition of the action or condition to be
 23 performed, a set of cell selection rules stored in said expert system knowledge base" in claims 13-17.
 24 ('432 patent, 16:42-44 & 16:52-55.) NEPTUNE fulfilled the need for "[a]n expert or knowledge-based
 25 system . . . to perform efficient decision-making in a large VLSI module library." Foo86-b at 184
 26 (KBSC000914). For a specified logic function, e.g., XOR, NEPTUNE would apply a set of cell
 27 selection rules stored in an expert system knowledge base, such as heuristic rules for resolving design
 28 trade-offs between speed and area and rules for selecting the module with the simplest logic structure.

1 *Id.* at 184-85 (KBSC000914-915). Figure 2 in the paper illustrates NEPTUNE's basic architecture as a
 2 module selector and evaluator, accepting as input a set of design specifications and producing an
 3 optimized module set from the VLSI data stored in a knowledge base. *Id.* at 187 (KBSC000917). The
 4 paper uses the example of a digital nonrecursive filter (DNF). *Id.* at 185 (KBSC000915).

5 On information and belief, Dr. Foo also contributed to the conception of the overall architecture
 6 of the preferred embodiment of the invention of the '432 patent. Sometime in approximately late
 7 1985, he sketched out by hand a diagram of a "knowledge-based silicon compiler" that included a
 8 "parser" for translating an input specification AAF (for antecedent-action form) or SDF (state diagram
 9 form) into an "intermediate AAF" and "supporting macros." This file would then be used by a
 10 "module matcher" to create "a list of functional modules along with I/O [input/output] constraints"
 11 from data stored in the knowledge base labeled KB. A "module selector" then selects a set of modules
 12 that would be used by a "netlist generator" to create a netlist, which would then be used for "module
 13 placement and routing."

14 Dr. Foo's diagram is very similar in content to a short paper bearing Kobayashi's name,
 15 entitled "A Knowledge-Based Approach to VLSI CAD," sketched out "a knowledge-based system for
 16 translating high-level specifications to VLSI systems based on designer's expert knowledge."
 17 (KBSC000994-1005.) The paper disclosed the use of (1) antecedent-action form and a state diagram
 18 for expressing the behavioral specifications of a target chip (e.g., a digital nonrecursive filter (DNF)),
 19 and (2) associated user-defined macro operations for performing the mapping of the behavioral
 20 specifications to functional modules such as comparators, adders and multipliers. (KBSC000998-999.)
 21 The paper references the earlier published works by Dr. Foo and even uses the same figure from
 22 Foo86-2 showing the functional modules for implementing the DNF chip. (KBSC001001 & 1004.)

23 Based on his sketched diagram, Dr. Foo is at least a joint contributor to the conception of the
 24 following additional elements in claim 13 of the '432 patent:

25 "storing a set of definitions of architecture independent actions and conditions" (macros)

26 "describing for a proposed application specific integrated circuit a series of architecture
 27 independent actions and conditions" (antecedent-action form and state diagram)

28 "specifying for each described action and condition of the series one of said stored definitions
 which corresponds to the desired action or condition to be performed" (parser)

“generating for the selected integrated circuit hardware cells, a netlist defining the hardware cells which are needed to perform the desired function of the integrated circuit and the interconnection requirements therefor” (netlist generator)

(‘432 patent, 16:37-38, 16:45-52, 16:61-64.) Also, Dr. Foo is at least a joint contributor of the subject matter of claim 14 of the ‘432 patent: “generating from the netlist the mask data required to produce an integrated circuit having the desired function” (module placement and routing).

In addition, Mr. Oka recently specified that what Ricoh claims is the initial specification for KBSC (KBSC00010-28) was drafted in December 1986 by a combination of Mr. Oka, Mr. Suehiro, Dr. Kobayashi, Mr. Oziku and others from ICC. Notably, Mr. Oka testified that Mr. Shindo did not participate in drafting this specification and that his only contribution as of December of 1986 was a very high level description of what the system was to be. While Synopsys and the Customer Defendants dispute Ricoh’s claim that the specification represents the first development work on KBSC, if Ricoh is correct, there is still misjoinder of inventors.

Synopsys and the Customer Defendants are seeking discovery of additional information relating to the issue of inventorship of the ‘432 patent.

C. INVALIDITY OF ‘432 PATENT UNDER 35 U.S.C. § 102(g)(2).

Synopsys and the Customer Defendants contend that each of the asserted claims of the ‘432 patent is invalid because before the alleged invention by the inventors, it had already been made in this country by the following persons who have not abandoned, suppressed or concealed it.

Properly construed, the claims of the ‘432 patent do not read on Synopsys’ Design Compiler® software or related products. If essential limitations of the ‘432 patent claims are ignored, broadening the claims so as to encompass the activities of Synopsys’ Design Compiler® software, then individuals working at General Electric and/or other research institutions, including the University of California at Berkeley, who formed Optimal Solutions (and later Synopsys) have a superior claim to inventorship than the named inventors of the ‘432 patent. The individuals who conceived of and developed the architecture of early GE/Optimal Solutions/Synopsys products included: David Gregory, Aart de Geus, William Cohen, Karen Bartlett, Karl Garrison, Gary Hachtel, Tim Moore, Russell Segal, Rick Rudell, Van Morgan and William Krieger. The original conception of the architecture for GE/Optimal

Solutions/Synopsys products dates back to at least 1984 and 1985. Synopsys is not claiming that the individuals identified above are the original inventors of any general architecture relevant to this case—only that these individuals have a superior claim to inventorship of such an architecture than the persons named on the ‘432 patent.

Charts describing the application of ancestral versions of Design Compiler to the claims of Ricoh’s patent are attached to this submission. These charts describe how the earliest version of the Design Compiler product operated and do not describe the operation of current or recent versions of Design Compiler, almost twenty years later.

In addition, the CMU-DAA, AT:TDAA, MEGA, IBM EDS, BSS, Fujitsu, DDL/SX, CHIPPE, DAGON, NTT, HAL, CADDY, Cathedral, Flammel, Calton Elf, AT:T PLEX, MIMOLA and VEXED Systems were all conceived in whole or in part prior to the conception of the KBSC System claimed inventors of the ‘432 patent. Attached hereto as Exhibit 56 is a chart identifying papers written about the listed systems before the claimed inventors alleged conception.

D. INVALIDITY OF ‘432 PATENT UNDER 35 U.S.C. § 103(a).

Synopsys and the Customer Defendants contend that each of the asserted claims of the ‘432 patent is rendered obvious by one or more of the following items of prior art, or combination of items of prior art, as set forth below.

1. Combination with References Teaching Input of “Architecture Independent Actions and Conditions.”

Synopsys’ and the Customer Defendants’ Preliminary Invalidity Contentions contained a discussion regarding the obviousness of a flowchart input format which has been omitted in light of the Court’s Claim Construction which held that flowchart input is not required by the asserted claims of the ‘432 patent. Several of the prior art systems identified in this invalidity report did, however, utilize flowchart inputs, which was the input utilized by the preferred (the only disclosed) embodiment of the ‘432 patent.

Systems accepting input in the form of “architecture independent actions and conditions” for the generation of a netlist were well known in the art. The combination of software for synthesizing a lower-level description from a behavioral level description containing “architecture independent

actions and conditions” and into a lower level description (such as an RTL description) with a second program for synthesizing circuitry from the lower-level description was proposed in the literature and known in the art.

a. Combinations.

Such a combination is taught in the following references:

- A-i. AT&T DAA
- A-ii. Berkeley SYNTHESIS SYSTEM
- A-iii. CADDY
- A-iv. Carleton ELF
- A-v. CATHEDRAL
- A-vi. CHIPPE
- A-vii. CMU DAA
- A-viii. DAGON
- A-ix. FLAMEL
- A-x. Fujitsu
- A-xi. HAL
- A-xii. IBM EDS
- A-xiii. MEGA
- A-xiv. NTT VLSI-DE
- A-xv. PLEX
- A-xvi. MIMOLA & V-SYNTH
- A-xvii. [Shiva83]
- A-xviii. [Thomas81]
- A-xix. [Bendas83]
- A-xx. [Brayton85]
- A-xxi. [Trevillyan87]
- A-xxii. [McFarland86a]
- A-xxiii. [Sangiovanni-Vincentelli87]
- A-xxiv. [Zimmerman81]
- A-xxv. [Walker85]

See sections 1, 2 and 7 of Exhibit 57. The above references, which teach taking a high-level behavioral or functional description, i.e., an input of “architecture independent actions and conditions,” and synthesizing a lower-level RTL description therefrom, and the use of cascade synthesis stages in order to convert from higher level descriptions to lower level circuit descriptions, could be combined with the synthesis systems described in the following references to render the claim obvious:

- A-1. SOCRATES

b. Motivation to Combine.

The motivation to combine these references can be drawn from several sources:

- The extensive cross-citation between publications cited in this report describing these systems.

- 1 ▪ The [Shiva83] article discusses synthesis as a process of transforming higher-level
- 2 specification to a lower-level description.
- 3 ▪ The [Thomas81] article discusses synthesis as a process of transforming higher-level
- 4 specifications to a lower-level specification and proposes linking these transformations.
- 5 ▪ The [Sangiovanni-Vincentelli87] article proposes breaking the synthesis process into
- 6 stages and cascading one level of synthesis into the next.
- 7 ▪ The [Walker85] article describes synthesis as a transition in stages from an algorithmic
- 8 description to a register transfer description, followed by allocation and a translation to a
- 9 structural description.
- 10 ▪ The [Brayton85] article describes design as a sequence of digital transformations,
- 11 including transformation from a functional representation to an RTL description followed
- 12 by logic synthesis and binding with technology-dependent structures.
- 13 ▪ The [Trevillyan87] article describes possible inputs to synthesis across a range of levels of
- 14 detail, and indicates that all such levels of input are possible.
- 15 ▪ The [Bendas83] article defines synthesis as the process of translating a higher-level
- 16 description to a lower-level form.
- 17 ▪ The [McFarland86a] article describes the process of synthesizing a behavioral circuit
- 18 description as including compiling the behavior description into an RTL level description.
- 19 ▪ The [Zimmerman81] article discusses transformation of algorithmic descriptions to RTL
- 20 level descriptions as part of synthesis.
- 21 ▪ Other publications cited in sections 1, 2 and 7 of Exhibit 19 on the literature describing
- 22 synthesis systems taught that high level behavioral and functional descriptions could be
- 23 converted / synthesized in RTL level descriptions and/or that synthesis could be used to
- 24 produce a lower level description from a higher-level one. See Ex. 19, sections 1, 2 & 7.

2. **Combination with References Teaching Use of an Expert System Knowledge Base.**

Each of the following claim elements implicates the use of an expert system knowledge base:

- 21 ▪ “storing in an expert system knowledge base a set of rules for selecting hardware cells ...”
- 22 (16:42-44)
- 23 ▪ “applying to the specified definition of the action or condition to be performed, a set of
- 24 cell selection rules stored in said expert system knowledge base” (16:53-65)
- 25 ▪ “applying to the selected cells a set of data path rules stored in a knowledge base ...”
- 26 (16:4-7)

a. **Combinations.**

The use of an expert system knowledge base incorporating rules for selecting cells,
synthesizing data paths and synthesizing control structures (though an inference engine is not required

by the Court's claim construction many of these systems teach an inference engine as well), is taught in the following references:

- B-i. IBM EDS
- B-ii. CMU DAA
- B-iii. AT&T DAA
- B-iv. HAL
- B-v. Fujitsu DDL/SX
- B-vi. CATHEDRAL
- B-vii. CHIPPE
- B-viii. NTT VLSI-DE
- B-ix. [Rosenstiel86b]
- B-x. [Brewer86]
- B-xi. [Gajski84]
- B-xii. [Birmingham86]
- B-xiii. [Wolf86]

The teachings in the references above to use an inference engine with a knowledge base incorporating rules to select cells, synthesize data paths and control structures, could be combined with the synthesis systems described in the following references to render the claim obvious:

- B-1. MEGA
- B-2. SOCRATES
- B-3. Berkeley SYNTHESIS SYSTEM
- B-4. Ancestral DC
- B-5. Carleton ELF
- B-6. DAGON
- B-7. FLAMEL
- B-8. CADDY
- B-9. PLEX

b. Motivation to Combine.

The motivation to combine these references can be drawn from several sources:

- The extensive cross-citation between publications cited in this report describing these systems.
- The [Rosenstiel86b] article advocated the use of knowledge-based expert systems in synthesis systems. See, e.g., [Rosenstiel86] at 248-249, 254-255.
- The [Birmingham86] article advocated the application of knowledge-based expert systems to synthesis. See, e.g., [Birmingham86] at 533-534.
- The [Wolf86] article describes knowledge base for module selection by expert system. See, e.g., [Wolf86] at 867-869.
- Other publications cited in section 3 of Exhibit 19 on the literature describing synthesis systems taught that expert systems and rule bases were an appropriate and useful method for controlling the synthesis process, selecting cells, synthesizing datapaths and control paths. See Ex. 19, section 3.

3. Combination with References Teaching Datapath and Control Generation.

The following claim element implicates the generation of data paths and/or control circuitry:

- “generating data paths for the selected integrated circuit hardware cells” (17:8-10)

a. Combinations.

The use of a synthesis process to generate both data paths and control circuitry is taught in the following references:

- C-i. MEGA
- C-ii. CMU DAA
- C-iii. AT&T DAA
- C-iv. HAL
- C-v. FLAMEL
- C-vi. CATHEDRAL
- C-vii. CADDY
- C-viii. CHIPPE
- C-ix. NTT VLSI-DE
- C-x. Berkeley SYNTHESIS SYSTEM
- C-xi. Ancestral DC
- C-xii. Carleton ELF
- C-xiii. IBM EDS
- C-xiv. PLEX
- C-xv. Fujitsu
- C-xvi. MIMOLA & V-SYNTH
- C-xvii. [Thomas81]
- C-xviii. [Shiva83]
- C-xix. [Parker84]
- C-xx. [Rosenstiel86c]

The teachings in the references above to generate both data paths and control circuitry could be combined with the synthesis systems described in the following references to render the claims obvious:

- C-1. SOCRATES
- C-2. DAGON

b. Motivation to Combine.

The motivation to combine these references can be drawn from several sources:

- The extensive cross-citation between publications cited in this report describing these systems.
- The fact that the literature describing synthesis systems, described that both datapaths and control logic could be generated by the synthesis process. See Ex. 19, section 6, *infra*.

- 1 ▪ The [Thomas81] article describes that designs include both control and data flow
- 2 components and that the task of synthesis is to convert high level behavioral descriptions
- 3 of each of these into logical or physical structures for both control and data flow circuitry.
- 4 See, e.g., [Thomas81] at 1201-1203, FIGS. 1, 6.
- 5 ▪ The [Shiva83] article describes that hardware synthesis includes synthesis of both data
- 6 path and control functions. See, e.g., [Shiva83] at 76-77.
- 7 ▪ The [Parker84] article teaches that synthesis includes elements of both data path synthesis
- 8 and control synthesis. See, e.g., [Parker84] at 77-78.
- 9 ▪ The [Rosenstiel86c] article teaches that synthesis includes components of data path
- 10 synthesis and control synthesis. See, e.g., [Rosenstiel86c] at 36, 38.

11 **4. Mask Data Mask Data Generation Was Obvious At The Time of the**

12 **Invention To A Person of Ordinary Skill in the Art.**

13 Claim 14 (16:66-68) implicates the generation of mask data from the netlist output of the

14 synthesis system. As the '432 patent itself describes: "Computer-aided design systems for cell

15 placement and routing are commercially available which will receive netlist data as input and will lay

16 out the respective cells in the chip, generate the necessary routing, and produce mask data which can

17 be directly used by a chip foundry in the fabrication of integrated circuits." ('432 patent, 5:40-46.)

18 Other references also demonstrate that the production of mask data was a standard element in the

19 process of implementing semiconductor devices. This fact is established by [Mead80] at 92-98, and

20 [Gajski85] at 54.

21 **II. DISCLOSURES UNDER PATENT L.R. 3.3(c).**

22 Attached as Exhibits 1 through 55 are charts identifying where specifically in each item of prior

23 art identified in Section I above each element of each asserted claim is found.

24 **III. DISCLOSURES UNDER PATENT L.R. 3-3(d).**

25 **A. INVALIDITY OF '432 PATENT UNDER 35 U.S.C. § 112, ¶ 1.**

26 **1. Failure to Comply with the Written Description Requirement.**

27 Synopsis and the Customer Defendants contend that each of the asserted claims of the '432

28 patent is invalid because the specification does not contain a written description of the claimed

29 invention, and the manner and process of making and using it, in full, clear, concise and exact terms.

30 Specifically:

a. The Phrase “Architecture Independent” Constituted New Matter.

In their April 18, 1989 Amendment, the applicants amended the specification and claims by inserting the phrase “architecture independent” to describe the claimed “actions and conditions.” (4/18/89 Amendment at 1-2 (amending specification), 6 (amending original claim 20 (issued claim 13) & 7-8 (amending abstract)). The insertion of the phrase “architecture independent” to the specification and the asserted claims of the ‘432 patent introduced new matter to the patent application, in violation of 35 U.S.C. § 132. Not only does this amendment give rise to a separate ground of invalidity under 35 U.S.C. § 132, but it also violates the written description requirement, which prevents applicants from using the amendment process to update their disclosures (claims or specification) during the pendency of the application in the Patent Office. As of the date of the application for the ‘432 patent, January 13, 1988, the applicants were not in possession of the invention covered by the asserted claims because the specification they submitted to the Patent Office did not disclose and teach the claimed step of “storing of a set of definitions of *architecture independent* actions and conditions” or the claimed step of “describing for a proposed application specific integrated circuit a series of *architecture independent* actions and conditions.”

In addition, in its Final Infringement Contentions, Ricoh appears to rely on a construction of the phrase “architecture independent” that encompasses register-transfer level design inputs. There is no support in the specification of the ‘432 patent for construing the phrase “architecture independent” in this manner, and if the phrase were to be given this construction (which has been explicitly rejected by the Court), the ‘432 patent would lack written description support and would not be enabled, in violation of 35 U.S.C. § 112.

b. No Design Input Other Than a Flowchart Has Been Disclosed.

The asserted claims of the ‘432 patent include the step of “describing for a proposed application specific integrated circuit a series of architecture independent actions and conditions.” (‘432 patent, 16:45-47.) This step has been construed by the Court to mean “describing an input specification containing a series of desired functions to be performed by the desired ASIC.” (4/7/05

1 Claim Construction Order at 14:5-8.) Based on the Court's construction of "architecture independent
 2 actions and conditions," the described input specification must capture only the "functional or
 3 behavioral aspects of a portion of a circuit (or circuit segment) that does not imply a set architecture,
 4 structure, or implementing technology, but excludes the use of register-transfer level descriptions as
 5 taught in Darringer." (4/7/05 Claim Construction Order at 12:16-19.) Subject to this requirement, the
 6 input specification in the asserted claims can purportedly take any form.

7 The '432 patent, however, does not provide written support for any form of design input
 8 specification other than a flowchart input. ('432 patent, 2:21-27, 3:50-59, 4:8-38, Figs. 1a & 10)
 9 Ricoh has conceded that the "statelist" contained in Appendix A to the '432 patent ('432 patent, 14:8-
 10 29) is not an input to the KBSC system that is the subject of the asserted claims but rather, is an
 11 intermediate file produced from a flowchart input. ('432 patent, 13:32-35.) This deficiency in the
 12 specification of the '432 patent demonstrates that the applicants were not in possession of an invention
 13 that provided to a design engineer who does not have highly specialized skills and expertise in VLSI
 14 design another type of input expressing only the necessary logical steps for completing a task. As a
 15 consequence, the '432 patent cannot cover a design input specification besides a flowchart without
 16 violating the written description requirement of 35 U.S.C. § 112, ¶ 1.

17 **2. Failure to Comply with the Enablement Requirement.**

18 Synopsys and the Customer Defendants contend that each of the asserted claims of the '432
 19 patent is invalid because the specification does not enable a person of ordinary skill in the art to make
 20 and use the claimed invention.

21 **a. The Invention Is Not Enabling with Respect to the Design of** 22 **Any and All ASICs.**

23 The asserted claims of the '432 patent broadly claim "a computer-aided design process for
 24 designing an application specific integrated circuit which will perform a desired function." And yet,
 25 the only example disclosed in the specification of an ASIC designed using the claimed process is that
 26 of a soft drink vending machine controller. ('432 patent, 12:39 to 14:30, Figs. 10-15.) Neither this
 27 example nor the remainder of the specification enables a person of ordinary skill in the art to make and
 28

1 use the claimed invention to design any application specific integrated circuit (ASIC) without undue
2 experimentation.

3 Importantly, the specification lacks any enabling disclosure as to how timing and
4 synchronization (e.g., clock signals and shift registers) would be reflected in a flowchart or other
5 functional specification input. In illustrating the claimed process in the design of a soft drink vending
6 machine controller, the applicants at best have enabled the invention¹ only with respect to a subset of
7 cases—ASICs that perform simple, asynchronous, Boolean functions. The specification does not
8 enable one of ordinary skill in the art to make and use the claimed invention with an ASIC that must
9 use, for example, clock signals and shift registers.

10 Nor does the specification provide any enabling disclosure concerning how the claimed process
11 addresses fundamental design constraints like chip speed, power and area. A person of ordinary skill
12 in the art will recognize that tradeoffs in speed, power and area invariably have to be made as part of
13 an ASIC design effort. The specification, however, does not adequately disclose any control rules used
14 by the process for making such design decisions, or any means in the process for interacting with a
15 designer to arrive at such design decisions.

16 **b. Knowledge Base of Rules Is Not Adequately Disclosed.**

17 The specification of the '432 patent is not enabling because it does not provide an explanation
18 or disclosure of the expert system rules (including those for cell selection and netlist generation) used
19 by the disclosed CAD system such that a person of ordinary skill in the art would be able to build the
20 expert system knowledge base without undue experimentation. The path synthesizer and cell selector
21 (PSCS) software described in the specification relies on this knowledge base to perform a variety of
22 functions critical to the successful operation of the CAD system. ('432 patent, 2:58-63, 4:63-66, 5:6-8,
23 5:25-30, 8:21-30.)

24 In particular, the specification fails to provide sufficient information to allow one of ordinary
25 skill in the art to implement an expert system knowledge base containing the following
26

27 ¹ Synopsys and the Customer Defendants contend, however, that the specification is also not enabling for other reasons set
28 forth in these disclosures.

1 information/functions: (1) selection of macros, (2) merging two macros, (3) mapping of macros to
 2 cells, (4) merging two cells, and (5) error diagnostics. ('432 patent, 8:65 to 9:5.) The specification
 3 also fails to provide sufficient information to allow one of ordinary skill in the art to implement an
 4 expert system knowledge base containing the following information/functions: (1) data path synthesis,
 5 (2) data path optimization, (3) macro definitions, (4) cell library, and (5) error detection and correction.
 6 ('432 patent, 10:1-7.)

7 To the extent that the '432 patent discloses any information about the rules that are to be
 8 contained in the knowledge base, ('432 patent, 10:40 to 11:14, 11:49 to 12:35), that information is
 9 wholly inadequate to permit one of ordinary skill in the art to implement a knowledge base capable of
 10 selecting cells or of performing other design synthesis tasks without undue experimentation. Indeed,
 11 the specification merely points out that the formulation of rules requires both the knowledge of ASIC
 12 design experts and the expertise of knowledge engineers. ('432 patent, 10:9-10 & 11:32-36.) One of
 13 ordinary skill in the art cannot derive the rules simply by matching up the contents of the macro library
 14 with the contents of the cell library. The specification of the '432 patent thus violates the enablement
 15 requirement of 35 U.S.C. § 112, ¶ 1.

16 **c. Logic Synthesis Using a Non-Flowchart Input Is Not**
 17 **Adequately Disclosed.**

18 The specification of the '432 patent does not provide sufficient description of how a design
 19 input that is not in the form of a flowchart is acted on by the disclosed CAD system to produce a
 20 synthesized circuit design. The input for the PSCS (path synthesizer/cell selector) program is a
 21 "statelist" as shown in Appendix A. ('432 patent, 7:1-3, 8:56-57 & 14:8-29.) This statelist is an
 22 intermediate file, derived from a flowchart input using the EDSIM (flowchart editor/flowchart
 23 simulator) program. No explanation is provided, nor would such an explanation be apparent to one of
 24 ordinary skill in the art, as to how this statelist may be derived from any other input specification
 25 besides a flowchart. As a consequence, any claim of the '432 patent that extends to a design input
 26 other than a flowchart is not enabled, in violation of 35 U.S.C. § 112, ¶ 1.

d. Inference Engine Is Not Adequately Disclosed.

The specification of the '432 patent is not enabling because it does not provide an explanation of the inference engine required by the disclosed CAD system sufficient to allow a person of ordinary skill in the art to build such an engine without undue experimentation. The specification states that the rules interpreted by the engine must include the following features: knowledge representation in the form of a record structure, conditional expressions in the antecedent of a rule, and a facility to create and destroy structure in rule action and other capabilities. ('432 patent, 10:56-67.) It then states that the inference strategy "is based on a fast pattern matching algorithm." ('432 patent, 11:17-20.) The specification does not provide any explanation of how to implement rules in a language with the specified features, and the example rules, ('432 patent, 11:49 to 12:29), do not provide any guidance because they are written in high-level English rather than in the form that they would actually have to take in an operable system.

In addition, the specification fails to describe how contexts are used during the operation of the PSCS software. The specification describes that contexts are required and that there can be context changes. ('432 patent, 10:13-37.) It provides no information, however, about how context changes are made and the relationship between contexts and the particular functions that the specification states are performed by the PSCS software. The specification also prescribes a rule format that includes the context in which a particular rule is active, ('432 patent, 11:1-13), but the example rules do not have any contexts associated with them, ('432 patent, 11:49 to 12:29). As a result, the specification does not provide sufficient information to enable one of ordinary skill in the art to build the claimed invention.

The failure to adequately describe the design of the inference engine may additionally constitute a violation of the written description and/or best mode requirements of 35 U.S.C. § 112. The applicants claimed to have a working copy of the KBSC software that is the subject of the '432 patent but provided insufficient disclosure of the inference engine. The inference engine is implicated in at least the "selecting" step of asserted claim 13, and the "generating" steps of asserted claims 15 and 17.

e. System Controller Generation Is Not Adequately Disclosed.

The specification of the '432 patent is not enabling because it does not provide an explanation of how the disclosed CAD system generates a system controller. In order to design an ASIC for performing a desired function, the CAD system must be able to generate a system controller for synchronizing the operations of the different hardware cells. ('432 patent, 1:26-32, 2:40-42, 6:18-27.) This "custom generated" system controller is an essential part of the netlist output of the disclosed CAD system. ('432 patent, 4:39-43, 5:9-13.) Yet, the specification discloses only a controller generator block **33** that supposedly generates controller information to be used by the PSCS program (path synthesizer/cell selector) to generate the netlist. ('432 patent, 5:31-36 & Fig. 3.) No additional information is provided about the controller generator **33** such that a person of ordinary skill in the art would be able to make and use the claimed invention without undue experimentation. Elsewhere, the specification mentions as an "example rule" used by the PSCS program the condition (IF no blocks exist) and the resulting action (THEN generate a system controller). ('432 patent, 11:49-51.) This disclosure is also insufficient to enable one of ordinary skill in the art to build a CAD system that is capable of generating a system controller. The specification of the '432 patent thus violates the enablement requirement of 35 U.S.C. § 112, ¶ 1.

The failure to adequately describe the method used for system controller generation may also constitute a violation of the written description and/or best mode requirements of 35 U.S.C. § 112. The applicants claimed to have a working copy of the KBSC system software that is the subject of the '432 patent, and yet they have provided insufficient disclosure of the system controller generator. System controller generation is part of the claimed invention in claim 17, which claims the additional step of "generating control paths for the selected integrated circuit hardware cells." ('432 patent, 17:8-10.)

f. No Power or Timing Analysis Is Adequately Disclosed.

The specification of the '432 patent is not enabling because it does not provide an explanation of how the disclosed CAD system performs a power or timing analysis of the target design. The specification states that power limitations and time delay are important considerations in the cell selection process. ('432 patent, 8:26-30, 8:58-64 & 9:52-61.) Yet, the specification provides no

1 information as to how the power limitations or timing constraints on a given design are to be
2 established, how the power consumption or timing performance of a design is then calculated, and how
3 power consumption and timing delay are then used in cell selection (for example, in deciding what
4 design trade-offs must be made). Without this critical information, a person of ordinary skill in the art
5 cannot make and use the claimed invention without undue experimentation. The specification of the
6 ‘432 patent thus violates the enablement requirement of 35 U.S.C. § 112, ¶ 1.

7 The specification’s failure to adequately describe the design of the power or timing analysis
8 engine may additionally constitute a violation of the best mode requirement of 35 U.S.C. § 112, ¶ 1.
9 The applicants claimed to have a working copy of the KBSC system software that is the subject of the
10 ‘432 patent, but have not provided any disclosure of any power or timing analysis element of that
11 software.

12 **3. Failure to Comply with the Best Mode Requirement.**

13 Although disclosure is not required by Patent Local Rule 3-3(d) or otherwise subject to the
14 Patent Local Rules, Synopsys and the Customer Defendants contend that each of the asserted claims of
15 the ‘432 patent is invalid because the specification fails to set forth the best mode contemplated by the
16 inventors for carrying out the claimed invention.

17 **a. Best Mode for Selecting Hardware Cells Was Not Disclosed.**

18 The asserted claims of the ‘432 patent claim the step of “selecting from said stored data for
19 each of the specified definitions a corresponding integrated circuit hardware cell for performing the
20 desired function of the application specific integrated circuit,” which includes “applying to the
21 specified definition of the action or condition to be performed, a set of cell selection rules stored in
22 said expert system knowledge base[.]” (‘432 patent, 16:53-59.) The patent does not indicate,
23 however, how the design constraints of speed, power consumption and chip area basic to any
24 application specific integrated circuit are taken into account in the cell selection step. It merely states
25 that information describing the attributes of a hardware cell (e.g., width, height, minimum delay,
26 typical delay, maximum delay, power) can be used in the cell selection process, and that parameters
27 such as delay time allowed and power consumption can be used to map macros to cells. (‘432 patent,
28

9:35-61.) There is no disclosure as to how these design constraints are input into the disclosed CAD system so that they can be used for mapping and selection.

On information and belief, at the time of the application for the '432 patent, January 13, 1988, the inventors contemplated certain steps for entering design constraints into the preferred embodiment of the invention, as detailed in a paper entitled "KBSC: A Knowledge-Based Approach to Automatic Logic Synthesis," *International Journal of Computer Aided VLSI Design* 1, 377-90 (1989), written by the inventors:

The Cell Selector uses rules to select existing cells from a library to replace functional cells (without geometrical information) used in data-path synthesis. Example procedures for cell selection follow:

Enter design constraints such as speed, power consumption, and chip area.

Select cells that satisfy entered design constraints.

Eliminate unnecessary circuit portions if a selected cell has unused terminal(s).

Id. at 383. As this excerpt plainly indicates, the inventors contemplated that a design engineer would be able to enter basic design constraints of speed, power consumption and chip area into the PSCS program before the cell selection step begins.

Nowhere does the specification of the '432 patent disclose the entry of design constraints of speed, power consumption and chip area in the preferred embodiment of the CAD system, or any process of refining and optimizing the resulting design based on these constraints. This omission violated the "best mode" requirement of 35 U.S.C. § 112, ¶ 1, thus rendering the '432 patent invalid.

b. Best Mode for Generating Mask Data Was Not Disclosed.

Claim 14 of the '432 patent claims the additional step of "generating from the netlist the mask data required to produce an integrated circuit having the desired function." ('432 patent, 16:66-68.) The patent does not identify any particular method for generating mask data; instead it discloses the use of "any existing VLSI layout and routing tool **16** to create mask data **18** for geometrical layout." ('432 patent, 4:44-46; *see also* 5:40-46 & 14:4-6.)

On information and belief, at the time of the application for the '432 patent, January 13, 1988, the inventors contemplated a preferred method of placement and routing for use with the preferred embodiment of the claimed invention, as detailed in a paper entitled "KBSC: A Knowledge-Based

Approach to Automatic Logic Synthesis,” *International Journal of Computer Aided VLSI Design* 1, 377-90 (1989), written by the inventors:

Layout design is performed in a hierarchical manner. First, highest level cells (functional blocks) are placed on a chip. *An optimum placement is achieved by our floor planner*, based on information such as each block area (transistor count), X/Y dimension ratio, and a netlist between blocks. The floor planner computes relative X/Y coordinates, routing areas between blocks, and information about terminal locations in each block.

After initial placement (floor planning), automatic routing takes place. Our automatic place-route software can handle macrocells with four-sided terminals as well as cells with only upper and lower terminals. Savings of 20% or more of the chip area are achieved by this approach compared with our conventional place-route software for two-sided terminals. To achieve 100% routability, routing area is estimated by heuristics. Extra routing area is eliminated by compaction. Layout of lower-level blocks is performed in a similar manner.

Id. at 380 (emphases added). As the article indicates, the inventors contemplated a preferred method of placement and routing using their own proprietary floor planner and place-route software, which achieved optimum placement and 20% or more savings in chip area, respectively, compared to conventional and commercially available layout and routing tools.

Nowhere does the specification of the ‘432 patent disclose the proprietary floor planner and place-route software preferred by the inventors and considered most appropriate for use with the preferred embodiment. This omission violated the “best mode” requirement of 35 U.S.C. § 112, ¶ 1, thus rendering the ‘432 patent invalid.

c. Complete Knowledge Base of Rules NOT ADEQUATELY Disclosed.

Synopsys and the Customer Defendants are informed and believe that additional rules were known to Kobayashi, Shindo, ICC or Ricoh but not disclosed in the ‘432 patent specification.

B. INVALIDITY OF ‘432 PATENT UNDER 35 U.S.C. § 132.

Synopsys and the Customer Defendants contend that the asserted claims of the ‘432 patent are invalid because the insertion of the phrase “architecture independent” violated the statutory prohibition against new matter under 35 U.S.C. § 132. See Section III.A.1.a *supra*.

Dated: April 24, 2006

HOWREY LLP

By: /s/Denise M. De Mory
Denise M. De Mory
Attorneys for Plaintiff Synopsys and the
Customer Defendants

Gary M. Hoffman, pro hac vice
Kenneth W. Brothers, pro hac vice
Eric Oliver, pro hac vice
Dickstein Shapiro Morin & Oshinsky LLP
2101 L Street, NW
Washington, DC 20037-1526
Phone: (202) 785-9700
Fax: (202) 887-0689

Edward A. Meilman, pro hac vice
Dickstein Shapiro Morin & Oshinsky LLP
1177 Avenue of the Americas
New York, New York 10036-2714
Phone: (212) 835-1400
Fax: (212) 992-9880

Jeffrey B. Demain, State Bar No. 126715
Jonathan Weissglass, State Bar No. 185008
Altshuler, Berzon, Nussbaum, Rubin & Demain
177 Post Street, Suite 300
San Francisco, California 94108
Phone: (415) 421-7151
Fax: (415) 362-8064

Attorneys for the Plaintiff Ricoh Company, Ltd.

**IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION**

RICOH COMPANY, LTD,

Plaintiff,

vs.

AEROFLEX ET AL.

Defendant.

)
)
) Case No. C03-04669 MJJ (EMC),
)
) PATENT INFRINGEMENT ACTION
)
) NOTICE OF SUBPOENA FOR
) DOCUMENTS AND NOTICE OF
) DEPOSITION OF DR. YOON-PIN
) SIMON FOO, PURSUANT TO
) FED.R.CIV.P. 45
)
)
)
)
)

1 TO ALL PARTIES AND THEIR ATTORNEYS OF RECORD:

2 YOU ARE HEREBY NOTIFIED that, pursuant to Federal Rules of Civil Procedure 45,
3 Plaintiff Ricoh Company, Ltd. ("Plaintiff") has served Dr. Yoon-Pin Simon Foo the attached
4 subpoena for production of documents and deposition testimony.

5 Dr. Foo is required to produce the documents in his custody, possession, or control
6 specified in Attachment A to the subpoena by 9:30 a.m. on Monday, May 15, 2006, at Florida
7 A&M University - Florida State University, 2525 Pottsdamer Street, A350, Tallahassee, FL
8 32310.

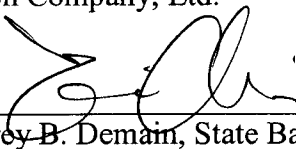
9 Plaintiff, by and through their attorneys, will take the deposition of Dr. Foo. The
10 deposition will commence on Friday, May 19, 2006, at 9:30am, at the Courtyard Tallahassee
11 North Hotel, 1972 Raymond Diehl Road, Tallahassee, FL 32308, and will continue from day to
12 day until completed.

13 The oral examination maybe videotaped and transcribed stenographically, and will take
14 place before an officer who is duly authorized to administer oaths. Plaintiff reserves the right to
15 use the videotape testimony at trial.

16
17 Dated: May 3, 2006

Respectfully submitted,

Ricoh Company, Ltd.

18
19 By: 
20 Jeffrey B. Demain, State Bar No. 126715
21 Jonathan Weissglass, State Bar No. 185008
22 Altshuler, Berzon, Nussbaum, Rubin & Demain
23 177 Post Street, Suite 300
24 San Francisco, California 94108
25 Phone: (415) 421-7151
26 Fax: (415) 362-8064

27 Gary M. Hoffman
28 Ken Brothers
Eric Oliver
Michael A. Weinstein
DICKSTEIN SHAPIRO MORIN &
OSHINSKY LLP
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Washington, D.C. 20037-1526
Telephone: (202) 785-9700

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Edward A. Meilman
DICKSTEIN SHAPIRO MORIN &
OSHINSKY LLP
1177 Avenue of the Americas
New York, New York 10036
Telephone: (212) 896-5471
Facsimile: (212) 997-9880

Attorneys for Ricoh Company, Ltd.

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**Issued by the
UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF
FLORIDA**

Ricoh Company, Ltd.

Plaintiff

SUBPOENA IN A CIVIL CASE

Aeroflex Inc. et al.,

Defendants

CASE No:¹ CV-03-4669 MJJ (EMC)
N.DIST OF CALIFORNIA

TO: Dr. Yoon-Pin Simon Foo
Florida A&M University - Florida State University
2525 Pottsdamer Street, A350, Tallahassee, FL 32310

Served on:
Howrey LLP
525 Market Street, Suite 3600
San Francisco, CA 94105-2708

☐ YOU ARE COMMANDED to appear in the United States District Court at the place, date, and time specified below to testify in the above case.

PLACE OF TESTIMONY

COURTROOM

DATE AND TIME

☒ YOU ARE COMMANDED to appear at the place, date, and time specified below to testify at the taking of a deposition in the above case.

PLACE OF DEPOSITION:

Courtyard Tallahassee North Hotel
1972 Raymond Diehl Road, Tallahassee, FL 32308
Phone: 850-422-0600

DATE AND TIME

May 19, 2006

9:30 am

☒ YOU ARE COMMANDED to produce and permit inspection and copying of the following documents or objects at the place, date, and time specified below (list documents or objects):

See Attachment A (Documents to be Produced)

PLACE

Department of Electrical & Computer Engineering
Florida A&M University - Florida State University,
2525 Pottsdamer Street, A350, Tallahassee, FL 32310

DATE AND TIME

May 15, 2006

9:30am

☐ YOU ARE COMMANDED to permit inspection of the following premises at the date and time specified below:

PREMISES

DATE AND TIME

Any organization not a party to this suit that is subpoenaed for the taking of a deposition shall designate one or more officers, directors, or managing agents, or other persons who consent to testify on its behalf, and may set forth, for each person designated, the matters on which the person will testify. Federal Rules of Civil Procedure, 30(b)(6).

ISSUING OFFICER SIGNATURE AND TITLE (INDICATE IF ATTORNEY FOR PLAINTIFF OR DEFENDANT)

DATE

Attorney for Plaintiff

May 3, 2006

ISSUING OFFICER'S NAME, ADDRESS AND PHONE NUMBER

Kenneth W. Brothers, Esq. Dickstein Shapiro Morin & Oshinsky LLP, 2101 L Street, NW, Washington, DC 20037
Ph (202) 785-9700

¹ If action is pending in district other than district of Issuance, state district under case number.

PROOF OF SERVICE

SERVED	DATE	PLACE
SERVED ON (PRINT NAME)		MANNER OF SERVICE
SERVED BY (PRINT NAME)		TITLE

DECLARATION OF SERVER

I declare under penalty of perjury under the laws of the United States of America that the foregoing information contained in the Proof of Service is true and correct.

Executed on _____
DATE

SIGNATURE OF SERVER

ADDRESS OF SERVER

Rule 45, Federal Rules of Civil Procedure, Parts C & D:**(c) PROTECTION OF PERSONS SUBJECT TO SUBPOENAS.**

(1) A party or an attorney responsible for the issuance and service of a subpoena shall take reasonable steps to avoid imposing undue burden or expense on a person subject to that subpoena. The court on behalf of which the subpoena was issued shall enforce this duty and impose upon the party or attorney in breach of this duty an appropriate sanction, which may include, but is not limited to, lost earnings and a reasonable attorney's fee.

(2)(A) A person commanded to produce and permit inspection and copying of designated books, papers, documents, or tangible things, or inspection of premises need not appear in person at the place of production or inspection unless commanded to appear for deposition, hearing or trial.

(B) Subject paragraph (d)(2) of this rule, a person commanded to produce and permit inspection and copying may, within 14 days after service of the subpoena or before the time specified for compliance if such time is less than 14 days after service, serve upon the party or attorney designated in the subpoena written objection to inspection or copying of any or all of the designated materials or of the premises. If objection is made, the party serving the subpoena shall not be entitled to inspect and copy the materials or inspect the premises except pursuant to an order of the court by which the subpoena was issued. If objection has been made, the party serving the subpoena may, upon notice to the person commanded to produce, move at any time for an order to compel the production. Such an order to compel production shall protect any person who is not a party or an officer of a party from significant expense resulting from the inspection and copying commanded.

(3)(A) On timely motion the court by which a subpoena was issued shall quash or modify the subpoena if it

(i) fails to allow reasonable time for compliance;

(ii) requires a person who is not a party or an officer of a party to travel to a place more than 100 miles from the place

where that person resides, is employed or regularly transacts businesses in person, except that, subject to the provisions of clause (c)(3)(B)(iii) of this rule, such a person may in order to attend trial be commanded to travel from any such place within the state in which the trial is held, or

(iii) requires disclosure of privileged or other protected matter and no exception or waiver applies, or

(iv) subjects a person to undue burden.

(B) If a subpoena

(i) requires disclosure of a trade secret or other confidential research, development or commercial information, or

(ii) requires disclosure of an unretained expert's opinion or information not describing specific events or occurrences in dispute and resulting from the expert's study made not at the request of any party, or

(iii) requires a person who is not a party or an officer of a party to incur substantial expenses to travel more than 100 miles to attend trial, the court may, to protect a person subject to or affected by the subpoena, quash or modify the subpoena or, if the party in whose behalf the subpoena is issued shows a substantial need for the testimony or material that cannot be otherwise met without undue hardship and assures that the person to whom the subpoena is addressed will be reasonably compensated, the court may order appearance or production only upon specified conditions.

(d) DUTIES IN RESPONDING TO SUBPOENA.

(1) A person responding to a subpoena to produce documents shall produce them as they are kept in the usual course of business or shall organize and label them to correspond with the categories in the demand.

(2) When information subject to a subpoena is withheld on a claim that is privileged or subject to protection as trial preparation materials, the claim shall be made expressly and shall be supported by a description of the nature of the documents, communications, or things not produced that is sufficient to enable the demanding party to contest the claim.

ATTACHMENT A

DEFINITIONS

a) **You/Your.** The term "you" or "your" in this paper means Dr. Yoon-Pin Simon Foo.

b) **Communication.** The term "communication" means the transmittal of information (in the form of facts, ideas, inquiries or otherwise).

c) **Document.** The term "document" is defined to be synonymous in meaning and equal in scope to the usage of this term in Federal Rule of Civil Procedure 34(a), including, without limitation, electronic or computerized data or data compilations. A draft or non-identical copy is a separate document within the meaning of this term. This term shall include, without limitation, the following items, whether printed or reproduced by any process, or written or produced by hand or stored in computer memory, magnetic or hard disk or other data storage medium, and whether or not claimed to be privileged, confidential or otherwise excludable from discovery, namely, notes, letters, correspondence, communications, facsimiles, e-mails, telegrams, memoranda, summaries or records of telephone conversations, or meetings, diaries, reports, laboratory and research reports and notebooks, recorded experiments, charts, plans, drawings, diagrams, schematic diagrams, illustrations, product descriptions, product analyses, requests for proposal, documents related to proposed or actual product improvements or changes, users manuals or guides, installation guides or manuals, technical descriptions or specifications, product repair manuals or guides, photographs, video images, software flow charts or descriptions or specifications, product functional descriptions or specifications, minutes or records of meetings, summaries of interviews reports or appraisals, opinions of counsel, agreements, reports or summaries of negotiation, brochures, pamphlets, advertisements, circulars, trade letters, press releases,

1 draft of documents and all other material fixed in a tangible medium of whatever kind
2 known to you or in your possession or control.

3
4 d) **Synopsys, Inc.** The term "Synopsys, Inc." as well as its abbreviated name (e.g.,
5 "Synopsys") or a pronoun referring to the foregoing means the Delaware corporation
6 known as Synopsys, Inc. and having place of business at 700 E. Middlefield Road,
7 Mountain View, California, and, where applicable, its officers, directors, employees,
8 agents, independent contractors, partners, corporate parent, subsidiaries or affiliates.

9 e) **ASIC Defendants.** The terms "ASIC Defendants" means Aeroflex
10 Incorporated, AMI Semiconductor, Inc., Matrox Electronic Systems Ltd., Matrox
11 Graphics Inc., Matrox International Corp., Matrox Tech, Inc. and Aeroflex Colorado
12 Springs, Inc. and, where applicable, their officers, directors, employees, agents,
13 independent contractors, partners, corporate parent, subsidiaries or affiliates. A
14 reference to an individual ASIC Defendant's full or abbreviated name or a pronoun
15 means the individual company. Where the listed subject area is not related or limited to
16 a specific named ASIC Defendant, the listed subject area shall be construed as seeking
17 knowledge and information concerning any and all of the ASIC Defendants named in
18 this action.

19
20 f) **Person.** The term "person" is defined as any natural person or any business,
21 legal or governmental entity or association.

22 g) **Concerning.** The term "concerning" means relating to, referring to, describing,
23 evidencing or constituting.

24 h) **All/Each.** The terms "all" and "each" shall be construed as all and each.

25 i) **And/Or.** The connectives "and" and "or" shall be construed either
26 disjunctively or conjunctively as necessary to bring within the scope of discovery all that
27 might otherwise be construed to be outside of its scope.
28

1 j) **Number.** The use of the singular form of any word includes the plural and
2 vice versa.

3
4 k) **'432 Patent.** As used herein, the "'432 patent" refers to United States Letters
5 Patent Number 4,922,432.

6 l) **Patent-in-suit.** As used herein, "patents-in-suit" refers to the '432 patent.

7 m) **Limitations.** Each listed subject area shall be construed independently and no
8 listed subject area shall limit the scope of any other listed subject area.

9
10 **INSTRUCTIONS**

11 1. Unless otherwise noted, this set of demands requires the production of
12 documents or tangible things that were prepared, created, written, sent, dated or
13 received at any time up to the present.

14 2. You shall produce documents as they are kept in the usual course of
15 business or shall organize and label the documents to correspond with the categories in
16 the document request.

17 3. If you withhold any documents or tangible things under a claim of
18 privilege, please furnish with the response to these demands a privilege and/or redaction
19 log identifying each document or tangible thing for which privilege is claimed, including
20 the following information:

21
22 a. The date, sender, recipient, and subject matter of the document or
23 tangible thing;

24 b. The basis upon which privilege is claimed; and

25 c. The paragraphs, paragraph or subparts of the demand to which the
26 document or tangible thing corresponds.

1
2 4. These requests are continuing and impose on Dr. Foo the obligations set
3 forth in Rule 26(e) of the Federal Rules of Civil Procedure.

4
5 **DOCUMENTS AND THINGS TO BE PRODUCED**

6 **REQUEST FOR PRODUCTION NO. 1:**

7 All documents and things related to the design, development and operation of the
8 system and/or processes described in attached Exhibits A and B, and the Hand-Sketched
9 Diagram of "A Knowledge-Based Silicon Compiler" referenced in attached Exhibit C,
10 including all documents and things related to the conception and reduction to practice of
11 the system and/or processes.
12

13 **REQUEST FOR PRODUCTION NO. 2:**

14 All documents and things related to the system and/or processes described in your
15 Masters Thesis entitled "Managing VLSI Design Data with a Relational Database
16 System", including but not limited to a copy of that document.

17 **REQUEST FOR PRODUCTION NO. 3:**

18 All documents and things related to the design, development and operation of the
19 '432 patent (attached hereto as Exhibit D), including all documents and things related to
20 the conception and reduction to practice of the system and/or processes described in the
21 '432 patent.
22

23 **REQUEST FOR PRODUCTION NO. 4:**

24 All documents and things relating to communications between you and Synopsys
25 or any of the ASIC Defendants.
26

27 **REQUEST FOR PRODUCTION NO. 5:**

1 All documents and things relating to communications between you and counsel
2 for Synopsys or any of the ASIC Defendants.
3

4 **REQUEST FOR PRODUCTION NO. 6:**

5 All documents concerning your experience in the field of logic synthesis design
6 between 1980 and 1990.

7 **REQUEST FOR PRODUCTION NO. 7:**

8 All documents, including a list of all publications, authored by you between 1980
9 and 1990.
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HOWREY
LLP525 Market Street
Suite 3600
San Francisco, CA 94105-2708
T 415.848.4900
F 415.848.4999
www.howrey.com

May 19, 2006

DIRECT DIAL 415.848.4970

FILE 068160.0061.000000

VIA FEDERAL EXPRESS OVERNIGHTKenneth W. Brothers, Esq.
DICKSTEIN, SHAPIRO, MORIN & OSHINSKY, LLP
2101 L Street NW
Washington, DC 20037

Re: Ricoh v. Aeroflex, et al.

Dear Mr. Brothers:

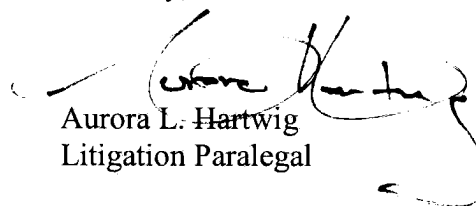
Please find enclosed the Simon Foo privilege log, as well as hard copies and one (1) production disk, both containing the following Bates numbers on behalf of Simon Foo (FOO):

<u>CD Title</u>	<u>Bates Range</u>	<u>Number of CD's</u>
FOO_002	FOO 000408-FOO 000420	1

Please note that pursuant to the protective order this production is labeled "CONFIDENTIAL".

Should you have any questions or comments, please do not hesitate to contact me.

Sincerely,


Aurora L. Hartwig
Litigation ParalegalALH:alh
Enclosures

Cc: Gary Hoffman (via E-mail w/o enclosures)
DeAnna Allen (via E-mail w/o enclosures)
Eric Oliver (via E-mail w/o enclosures))
Edward Meilman (via E-mail w/o enclosures)
Michael Weinstein (via E-mail w/o enclosures)
Douglas McCandless (via E-mail w/o enclosures)

PRIVILEGE LOG OF SIMON FOO

	FROM	TO	CC	DATE(S)	DESCRIPTION	ASSERTED PRIVILEGE
1.	Jacky Fink, Esq.	Simon Foo	Henry Su, Esq.; Denise De Mory, Esq.	4/12/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
2.	Simon Foo	Henry Su, Esq.	Jacky Fink, Esq.; Denise De Mory, Esq.	4/12/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
3.	Simon Foo	Henry Su, Esq.	Jacky, Fink Esq.; Denise De Mory, Esq.	4/13/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
4.	Simon Foo	Tracy Gibbs; Henry Su, Esq.; Jacky Fink, Esq.		4/18/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
5.	Simon Foo	Henry Su, Esq.	Tracy Gibbs; Jacky Fink, Esq.	4/19/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
6.	Simon Foo	Henry Su, Esq.	Jacky Fink, Esq.	4/19/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
7.	Henry Su, Esq.	Simon Foo		4/21/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
8.	Simon Foo	Henry Su, Esq.		4/21/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
9.	Henry Su, Esq.	Simon Foo		4/21/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
10.	Simon Foo	Henry Su, Esq.	Jacky Fink, Esq.	4/23/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP

	FROM	TO	CC	DATE(S)	DESCRIPTION	ASSERTED PRIVILEGE
11.	Henry Su, Esq.	Simon Foo	Jacky Fink, Esq.	4/23/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
12.	Simon Foo	Henry Su, Esq.	Jacky Fink, Esq.	4/23/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
13.	Henry Su, Esq.	Simon Foo	Jacky Fink, Esq.	4/23/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
14.	Henry Su, Esq.	Simon Foo		4/24/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
15.	Simon Foo	Henry Su, Esq.		4/26/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
16.	Simon Foo	Henry Su, Esq.		4/27/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
17.	Simon Foo	Henry Su, Esq.		4/27/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
18.	Simon Foo	Yoshiyasu Takefuji	Henry Su, Esq.	5/1/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
19.	Henry Su, Esq.	Simon Foo		5/1/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
20.	Tracy Gibbs	Simon Foo	Henry Su, Esq.		Confidential attorney-client e- mail communication regarding representation for responding to Ricoh subpoena	AC/WP
21.	Simon Foo	Henry Su, Esq.		5/3/2006	Confidential attorney-client e- mail communication regarding representation for responding to Ricoh subpoena	AC/WP
22.	Henry Su, Esq.	Simon Foo		5/4/2006	Confidential attorney-client e- mail communication regarding representation for responding to Ricoh subpoena	AC/WP

	FROM	TO	CC	DATE(S)	DESCRIPTION	ASSERTED PRIVILEGE
23.	Simon Foo	Jacky Fink, Esq.	Henry Su, Esq.; Simon Foo	5/5/2006	E-mail reflecting litigation strategy of Howrey attorneys	WP
24.	Simon Foo	Henry Su, Esq.			Confidential attorney-client e- mail communication regarding representation for responding to Ricoh subpoena	AC/WP
25.	Simon Foo	Henry Su, Esq.	Tracy Gibbs	5/11/2006	Confidential attorney-client e- mail communication regarding representation for responding to Ricoh subpoena	AC/WP
26.	Henry Su, Esq.	Simon Foo		5/12/2006	Confidential attorney-client e- mail communication regarding representation for responding to Ricoh subpoena	AC/WP
27.	Simon Foo	Henry Su, Esq.		5/12/2006	Confidential attorney-client e- mail communication regarding representation for responding to Ricoh subpoena	AC/WP
28.	Henry Su, Esq.	Simon Foo	Henry Su, Esq.; Denise De Mory, Esq.	5/12/2006	Confidential attorney-client e- mail communication regarding representation for responding to Ricoh subpoena	AC/WP

D I C K S T E I N S H A P I R O M O R I N & O S H I N S K Y L L P

2101 L Street NW • Washington, DC 20037-1526

Tel (202) 785-9700 • Fax (202) 887-0689

Writer's Direct Dial: (202) 429-2184

E-Mail Address: BrothersK@dsmo.com

May 22, 2006

Via PDF

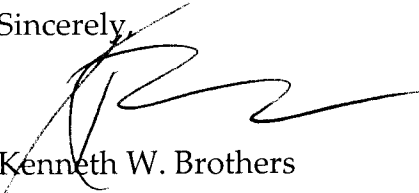
Denise DeMory, Esq.
Howrey LLP
525 Market Street, Suite 3600
San Francisco, CA 94105-2708

Re: Ricoh v. Aeroflex, et al.
Synopsys v. Ricoh

Dear Denise:

We are in receipt of your May 19 production of a privilege log relating to Dr. Foo. Dr. Foo has not been disclosed as a litigation consultant by you; the log does not refer to any such consultation relationship; and according to your privilege log, the earliest that you agreed to represent him was on May 3. Thus, you may not claim any privilege over communications with Dr. Foo prior to May 3. Your communications with Dr. Foo are fully discoverable. Please immediately produce all such communications.

Sincerely,



Kenneth W. Brothers

cc: Howrey distribution list

HOWREY
LLP525 Market Street
Suite 3600
San Francisco, CA 94105-2708
www.howrey.com**Denise M. De Mory**

Partner

T 415.848.4983

F 415.848.4999

demoryd@howrey.com
File 06816.0060.000000

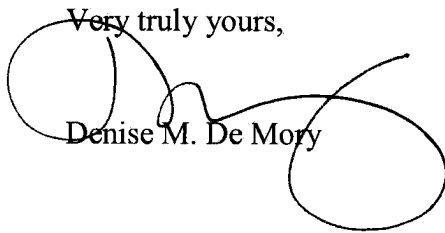
May 23, 2006

VIA PDFKenneth W. Brothers, Esq.
Dickstein Shapiro Morin & Oshinsky LLP
2101 L Street, N.W.
Washington, DC 20037-1526**Re: *Synopsys v. Ricoh Company, Ltd.,*
 Case No. C03-2289 MJJ (EMC)
 Ricoh Company, Ltd. v. Aeroflex, Inc., et al.,
 Case No. C03-4669 MJJ (EMC)**

Dear Ken:

I write in response to your letter regarding the Foo privilege log. We had no obligation to identify Dr. Foo as a consultant. Thus, any claimed failure to notify you is irrelevant to any claim of privilege. In addition, when the retention agreement was executed is not controlling either. We have properly asserted privilege with regard to all logged communications and will not be producing any additional documents.

Very truly yours,


Denise M. De Morycc: Gary Hoffman, Esq.
Edward Meilman, Esq.
Eric Oliver, Esq.
DeAnna Allen, Esq.
Michael Weinstein, Esq.
Rebecca Barbisch, Esq.
Seymour Seyoum

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 1

IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

SYNOPSYS, INC.,
Plaintiff,

vs.

NO: CO3-2289 MJJ (EMC)

RICOH COMPANY, LTD.,

Defendant.

**TRAVEL
TRANSCRIPT**

RICOH COMPANY, LTD.,

Plaintiff,

vs.

NO: CO3-04669 MJJ (EMC)

AEROFLEX INCORPORATED, AMI
SEMICONDUCTOR, INC., MATROX
ELECTRONIC SYSTEMS, LTD.,
MATROX GRAPHICS, INC., MATROX
INTERNATIONAL CORP. and
MATROX TECH., INC.,

Defendants.

THE DEPOSITION OF:

SIMON YOON-PIN FOO

AT THE INSTANCE OF:

Ricoh Company, Ltd.

DATE:

Wednesday, May 31, 2006

TIME:

Commenced at 9:28 a.m.
Terminated at 4:30 p.m.

PLACE:

Marriott Courtyard
Apalachee Parkway
Tallahassee, Florida

REPORTED BY:

SARAH B. GILROY, RPR, CRR
Notary Public the State of
Florida at Large

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 2

1 APPEARANCES

2 REPRESENTING SYNOPSYS, INC.:

3 HENRY C. SU, ESQUIRE

4 Howrey LLP

5 1950 University Avenue, 4th Floor

6 East Palo Alto, California 94303

7 REPRESENTING RICOH COMPANY, LTD.:

8 ERIC OLIVER, ESQUIRE

9 Dickstein, Shapiro, Morin & Oshinsky

10 2101 L Street NW

11 Washington, DC 20037

Page 4

1 Thereupon,

2 SIMON YOON-PIN FOO

3 was called as a witness, having been first duly sworn,
4 was examined and testified as follows:

5 DIRECT EXAMINATION

6 BY MR. OLIVER:

7 Q Good morning.

8 A Good morning.

9 Q Would you please state your full name for the
10 record.

11 A Simon Yoon-Pin Foo.

12 Q Would you state your current residence
13 address.

14 A 6239 Middlewood Court, Tallahassee, Florida
15 32312.

16 Q Handing you what has been marked as Exhibit
17 500, bearing production numbers FOO 00001 through
18 0008. Do you recognize Exhibit 500?

19 A Yes.

20 Q What is it?

21 A It's my vitae.

22 (Exhibit No. 500 was identified for the
23 record).

24 BY MR. OLIVER:

25 Q Did you prepare it?

Page 3

1 INDEX

2 WITNESS PAGE NO
3 SIMON YOON-PIN FOO
4 Direct Examination by Mr. Oliver 4

5 INDEX OF EXHIBITS

6 NUMBER DESCRIPTION
7 500 CV 4
8 501 "Programmable Logic for Parallel
9 Convolution" 11
10 502 Architecture of KBMS 28
11 503 Hand-drawn sketch 28
12 504 Hand-drawn sketch 28
13 505 Hand-drawn sketch 28
14 506 Hand-drawn sketch 28
15 507 "Databases and Cell Selection Algorithms
16 For VLSI Cell Libraries" 80
17 508 "A Knowledge-based System for VLSI
18 Module Selection" 28
19 509 "Framework for Managing VLSI CAD
20 Data" 61
21 510 "VLSI Cell Selection A Frame-Based
22 Approach" 61
23 511 "A Knowledge-Based VLSI Module Selector
24 With a Built-in Frame-Based Data
25 Base Management System" 87
512 Foo work 88
513 "A Knowledge-Based VLSI Module Selector
With a Built-in Frame-Based Data
Base Management System" 88
514 Foo work 88
515 Foo work 88
516 Foo work 88
517 "A Knowledge-Based Silicon Compiler for
High-Level Behavioral Descriptions" 88
518 "A Knowledge-Based Silicon Compiler for
High-Level Behavioral Descriptions" 88
519 Patent 432 122
520 "Translating Behavioral Specifications
To VLSI A Knowledge-Based Approach" 123
521 Project Description for ECE890B 152
522 "A Knowledge-Based Approach to VLSI CAD" 155
24 CERTIFICATE OF OATH 162
25 CERTIFICATE OF REPORTER 163

Page 5

1 A Yes, sir.

2 Q When did you prepare it?

3 A This vitae was probably prepared in early
4 2006.

5 Q Is there anything you would add if you were to
6 update it today?

7 A To the best of my knowledge, no.

8 Q Are there any errors that you would correct?

9 A To the best of my knowledge, no.

10 Q Did you intentionally leave off any
11 publications?

12 A Could you repeat that question again?

13 Q Did you intentionally leave off any
14 publications?

15 A No, sir.

16 Q Where did you do your undergraduate work?

17 A The University of South Carolina in Columbia.

18 Q Did you have any significant projects towards
19 your degree?

20 MR. SU: Objection as to form.

21 A Could you elaborate -- which degree are you
22 referring to, sir?

23 BY MR. OLIVER:

24 Q Your undergraduate degree.

25 A Oh, the undergraduate degree. I -- to the

2 (Pages 2 to 5)

Page 6

1 best of my knowledge, for two or three semesters,
2 starting in 1982, I worked as a student research
3 assistant with Dr. Kobayashi
4 **Q Do you remember what you did in that 1982 time**
5 **frame with Dr. Kobayashi?**
6 A Could you elaborate that question?
7 **Q Do you remember what you did as a student**
8 **researcher in 1982 with Dr. Kobayashi?**
9 A I was a research assistant for him, and my
10 task was to assist him in research in the area of
11 integrated circuits.
12 **Q Anything in particular with respect to**
13 **integrated circuits?**
14 A In particularly logic design, circuit design,
15 literature search, writing of technical papers, and I
16 think that's pretty much the work that I did for him,
17 to the best of my knowledge.
18 **Q And all of that was during that time period in**
19 **1982; is that correct?**
20 A Between 1982 and 1983, as an undergraduate
21 research assistant.
22 **Q How did you meet Dr. Kobayashi?**
23 A I was recruited by him, because at that time I
24 was one of the honor students in electrical
25 engineering department.

Page 7

1 **Q Did you have any specialties at that time?**
2 A Yes.
3 **Q What was your specialty?**
4 A Digital logic design, and I was particularly
5 interested in integrated circuit design.
6 **Q Did Dr. Kobayashi teach any of your**
7 **undergraduate courses?**
8 A Can I -- can you say that question again.
9 **Q Did Dr. Kobayashi teach any of your**
10 **undergraduate courses?**
11 A I believe I took the digital logic design
12 under him.
13 **Q Do you remember what year?**
14 A I believe it was either 1981 or 1982.
15 **Q Was Dr. Kobayashi your advisor when you were**
16 **working towards your master's degree?**
17 A Yes, sir.
18 **Q When did he start being your advisor?**
19 A He was already my advisor when I was a
20 student, research assistant when I was an
21 undergraduate.
22 **Q What does it mean to be an advisor?**
23 A He basically mentor me. He guide me in the
24 area of graduate education.
25 **Q What do you mean by guiding you in the area of**

Page 8

1 **graduate education?**
2 A Telling me which courses to take, advising
3 me -- advising me on courses to take.
4 **Q Did you have a master's thesis?**
5 A Yes, sir.
6 **Q What was your master's thesis?**
7 A The title?
8 **Q (Nodding head affirmatively).**
9 A It's called managing -- "Managing the VLSI CAD
10 Data With a Relational Database System," I believe, to
11 the best of my knowledge. I would be happy to look at
12 my -- maybe I did not specify in my vitae what the
13 title is.
14 **Q Was it called managing VLSI --**
15 A Yeah, VLSI CAD data with a relational
16 database, something like that.
17 **Q Did Dr. Kobayashi provide you with the idea**
18 **for your thesis?**
19 A No.
20 **Q Who did?**
21 A The idea of using a relational database system
22 to manage VLSI data actually came from a course that I
23 took with Professor Ronald Bonnell.
24 **Q Who is Dr. Bonnell?**
25 A Dr. Bonnell teaches the database engineering

Page 9

1 course, which I took when I was a graduate student.
2 **Q Do you remember what year you took that**
3 **course?**
4 A I believe it was in 1983, late in '83 or early
5 '84.
6 **Q Did Dr. Kobayashi advise you with respect to**
7 **your thesis?**
8 A Yes, sir.
9 **Q How did he advise you?**
10 A He advise me in terms of what courses I needed
11 to complete my degree, and he also advised me on the
12 topic.
13 **Q How did he advise you on the topic?**
14 A What would be a good topic, a relevant topic
15 at that time.
16 **Q What do you mean by "relevant topic at that**
17 **time"?**
18 A Something that is not out of date.
19 **Q Did you need help in that regard?**
20 A Say that --
21 MR. SU: Object to form.
22 BY MR. OLIVER:
23 **Q Did you need help in that regard?**
24 A No.
25 **Q But he gave you advice; right?**

Page 10

1 A Yes, sir.
 2 **Q Did he give you any other assistance in your**
 3 **master's thesis?**
 4 A He corrected some of my writing, and I believe
 5 that's about it.
 6 **Q Did he provide you with any design examples?**
 7 MR. SU: Objection as to form.
 8 A Which design example are you referring to?
 9 BY MR. OLIVER:
 10 **Q You have a design example in your master's**
 11 **called the "Programmable Logic For Parallel**
 12 **Convolution"?**
 13 A I don't recall --
 14 **Q Would you like to see a copy of your master's**
 15 **to refresh your recollection?**
 16 A I guess my response is that I don't recall how
 17 much he assisted me in developing that example.
 18 **Q Do you have any doubt that he assisted you in**
 19 **some respect?**
 20 A He may have assisted me in some respect, but
 21 I'm the one who implemented the design example.
 22 **Q What do you mean "implemented the design**
 23 **example"?**
 24 A In other words, I started from the conceptual
 25 design and completed a whole process to the integrated

Page 11

1 circuit description at the mask level.
 2 **Q Did you coauthor a paper with Dr. Kobayashi**
 3 **regarding programmable logic for parallel convolution?**
 4 A Yes, sir.
 5 **Q Was that paper based on your work?**
 6 A Can I look at a paper for details, please?
 7 **Q Handing you what has been marked as Exhibit**
 8 **501, bearing production numbers KBSC 00918 through**
 9 **0922. This is a document entitled "Programmable Logic**
 10 **For Parallel Convolution." Would you take a moment to**
 11 **review that Exhibit 501, please.**
 12 (Exhibit No. 501 was identified for the
 13 record).
 14 A (Witness complies). Okay.
 15 BY MR. OLIVER:
 16 **Q Was Exhibit 501 based on your work?**
 17 A Which work are you referring to, sir?
 18 **Q Any work.**
 19 A Yes, sir.
 20 **Q Was Exhibit 501 based on Dr. Kobayashi's work?**
 21 A Not entirely.
 22 **Q In any respect?**
 23 A It was our work.
 24 **Q You did it jointly?**
 25 A That's correct.

Page 12

1 **Q Who had the underlying idea for Exhibit 501?**
 2 A When you say "underlying idea," what do you
 3 mean?
 4 **Q The primary idea behind writing the paper.**
 5 MR. SU: Objection as to form.
 6 A Are you talking about the person who wrote the
 7 whole paper?
 8 BY MR. OLIVER:
 9 **Q No. I'm asking you about the underlying idea**
 10 **of the paper.**
 11 A Are you referring to who came up with the
 12 title of the paper?
 13 **Q Only if the title reflects the idea behind the**
 14 **paper.**
 15 A Again, like I mentioned earlier, it was our
 16 paper. We work together.
 17 **Q Do you believe you came up with the idea**
 18 **together?**
 19 A Possibly.
 20 **Q Do you know for sure?**
 21 A It's been over 20 years. I do not recall the,
 22 you know, the actual conversation that led to this
 23 paper. But at that time I was working with him.
 24 **Q Whose idea was it to publish this paper?**
 25 A It was Kobayashi's idea.

Page 13

1 **Q Do you know why he listed you as a coauthor?**
 2 A Because I assisted in the -- either the idea
 3 of the paper or writing of the paper or both.
 4 **Q Has he ever omitted you from a paper that he**
 5 **has published when you had either the idea of the**
 6 **paper or writing of the paper?**
 7 A Say that again.
 8 **Q Has Dr. Kobayashi ever omitted you from a**
 9 **published paper when you had either assisted in the**
 10 **idea of the paper or in the writing of the paper or**
 11 **both?**
 12 A Possibly.
 13 **Q Do you know for a fact?**
 14 A I believe there were one presentation that he
 15 has made but my name was not -- was omitted.
 16 **Q Do you know what presentation that was?**
 17 A I believe, to the best of my recollection,
 18 he -- Dr. Kobayashi has presented a talk at
 19 Greenville, South Carolina that was very much my work.
 20 **Q Did that talk -- strike that. Did that talk**
 21 **result in a published paper?**
 22 A I do not recall that.
 23 **Q Have there been any other papers which you**
 24 **believe Dr. Kobayashi omitted you from the paper?**
 25 A To the best of my knowledge, I do not know.

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 14

1 **Q How did you learn of that Greenville, South**
2 **Carolina presentation that you spoke about in your**
3 **previous answer?**
4 A I believe I have seen it somewhere, either on
5 the Internet or in some other forum.
6 **Q When did you first see it?**
7 A I believe it was recently.
8 **Q When you say "recently," what do you mean?**
9 A Within a month.
10 **Q Is that the first time you saw it?**
11 A Yes, sir.
12 **Q How did you feel when you saw it?**
13 A I was flabbergasted.
14 **Q Why?**
15 A Because the description was taken out of my
16 work, and I was not given credit.
17 **Q Was there any part of that paper that could**
18 **only be attributed to Dr. Kobayashi?**
19 A Say that again.
20 **Q Was there any part of that paper that could**
21 **only be attributed to Dr. Kobayashi?**
22 A No.
23 **Q Nothing?**
24 A I would not say nothing. I would not say, you
25 know, entirely my, you know, presentation But it is

Page 15

1 possible that he could paraphrase it.
2 **Q What do you mean, "he could paraphrase it"?**
3 A For example, a description could be, you know,
4 describing a number of ways. He could, you know, by
5 his word, you know, describe in another form. But
6 it's also basically the same idea.
7 **Q Do you believe it was your idea alone?**
8 A I would not say entirely my idea alone. But I
9 definitely played a big role in it.
10 **Q What role did you play?**
11 A I developed the program for it, and I came up
12 with the original idea for it
13 **Q Did you try to contact Dr. Kobayashi once you**
14 **learned of this presentation or paper?**
15 A No, sir.
16 **Q What did you do after you learned of this**
17 **paper?**
18 A I did nothing.
19 **Q How did you find this paper?**
20 A It is off the Internet, to the best of my
21 recollection.
22 **Q Did you find it off the Internet?**
23 A Say that again.
24 **Q Did you find it off of the Internet?**
25 A Did I find off the Internet?

Page 16

1 **Q Yes.**
2 A I believe I did.
3 **Q Were you doing any searches to try to find it?**
4 A Yes, sir.
5 **Q Why were you doing those searches?**
6 A Why was I doing the search's?
7 **Q Yes.**
8 A I was -- I wanted to know what's out there.
9 **Q Why?**
10 A That, you know, my idea, I wanted to see
11 how -- if anybody has taken my idea and published it.
12 **Q How old is that idea?**
13 A How old is that idea?
14 **Q (Nodding head affirmatively).**
15 A This idea was back in -- it started back in --
16 can I ask you to clarify the idea? What idea are you
17 talking about?
18 **Q I don't know. You talked about the idea for**
19 **several minutes now. So whatever idea that you're**
20 **talking about that you were searching for.**
21 A The idea that I'm referring to is the cell
22 selection.
23 **Q I don't remember seeing any recent articles by**
24 **you in the past 15 or so years on cell selection; is**
25 **that true?**

Page 17

1 A That's correct.
2 **Q So why is it just recently that you're**
3 **interested in doing research on cell selection?**
4 A After I was contacted by your attorneys
5 regarding the patent, the 432 patent, I -- that got me
6 interested.
7 **Q Did you review the 432 patent?**
8 A Yes, sir.
9 **Q Were you flabbergasted when you saw the 432**
10 **patent?**
11 A Absolutely.
12 **Q Why is that?**
13 A Because a number of the parts of the patent
14 talks about the work that I did.
15 **Q Are you doing any consulting work for any**
16 **parties in this litigation?**
17 A Say that again.
18 **Q Are you doing any consulting work for any**
19 **parties in this litigation?**
20 A What do you mean by "consulting work"?
21 **Q Are you being paid to review or discuss any**
22 **matters with anyone connected with this litigation?**
23 A Yes, sir.
24 **Q Who are you working for?**
25 A I'm a consultant for Howrey.

5 (Pages 14 to 17)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 18

1 **Q How much are you being paid?**
2 A Are you talking about hourly rate?
3 **Q I don't -- however you're being compensated**
4 **for your consulting work.**
5 A I'm being compensated for the number of hours
6 I put in.
7 **Q What is your hourly rate?**
8 A \$250 an hour.
9 **Q Are you being compensated for today's**
10 **deposition?**
11 A I believe so.
12 **Q How much have you billed Howrey for consulting**
13 **services in this litigation so far to date?**
14 A To date --
15 MR. SU: I'm going to object to that as work
16 product. We've not identified him as a testifying
17 expert
18 MR. OLIVER: Work product?
19 MR. SU: Yes.
20 MR. OLIVER: His hourly rate.
21 MR. SU: No. He just testified as to his
22 hourly rate. You want to know now how many hours
23 he's billed.
24 MR. OLIVER: Are you going to instruct him not
25 to answer the question?

Page 19

1 MR. SU: Yes.
2 BY MR. OLIVER:
3 **Q Are you going to answer the question?**
4 A No.
5 **Q Why not?**
6 A By advice from my counsel.
7 **Q When did you start working as a consultant for**
8 **Howrey?**
9 A I started in, I believe, to the best of my
10 knowledge, in middle of April 2006.
11 **Q Who first approached you about being a**
12 **consultant?**
13 MR. SU: Objection, work product.
14 BY MR. OLIVER:
15 **Q I'm just asking you for the name of the person**
16 **who approached you.**
17 A I believe is Jackie Fink of Howrey.
18 **Q Do you know when she first approached you?**
19 A I believe early April, to the best of my
20 knowledge.
21 **Q You made a reference to discussing attorney**
22 **from my firm, which I assume you are referring to**
23 **Dickstein, Shapiro; do you remember that?**
24 A Yes, sir.
25 **Q What were you referring to?**

Page 20

1 A There was one person from Shapiro, Weinstein
2 law firm that contacted me.
3 **Q When did he contact you?**
4 A I believe, to the best of my recollection, the
5 person contacted me in either 2002 or early 2003.
6 **Q Did you sign a nondisclosure agreement?**
7 A That was not mentioned in the conversation.
8 **Q Do you remember the conversation being under**
9 **some understanding of confidentiality?**
10 A That was not mentioned.
11 **Q Did you reveal any of your discussions with**
12 **Mr. Weinstein to anyone at Howrey?**
13 A No, sir.
14 **Q How much time did you spend preparing for your**
15 **deposition today?**
16 A Are you talking about this morning?
17 **Q For your -- in preparation for today's**
18 **deposition.**
19 A Okay. Yesterday I spent about three hours.
20 **Q What did you do in those three hours?**
21 A I reviewed the evidence or documents that I
22 have provided to my counsel.
23 **Q Did you speak with anyone in preparation of**
24 **today's deposition?**
25 A No other person other than my counsel.

Page 21

1 **Q Who did you speak with?**
2 A I spoke with Mr. Su.
3 **Q Anyone else?**
4 A Nobody else.
5 **Q You didn't speak with Jackie Fink?**
6 A No, sir.
7 **Q Were you given a retainer to be a consultant**
8 **for Howrey?**
9 A Could you explain that retainer.
10 **Q Were you given a payment in advance?**
11 A No, sir.
12 **Q Are you being represented by counsel today?**
13 A Yes, sir.
14 **Q Mr. Su your counsel?**
15 A That's correct.
16 **Q When did he become your counsel?**
17 A I believe Mr. Su became my counsel in the
18 middle or early part of May.
19 **Q Why did you retain counsel?**
20 A The reason was, I was subpoenaed.
21 **Q Have you done any research with respect to**
22 **rule-based systems?**
23 A Yes, sir.
24 **Q What type of research have you done?**
25 A I have done some research on rule-based system

6 (Pages 18 to 21)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 22

1 as part of some course work that I took when I was a
2 graduate student at the University of South Carolina.
3 **Q Do you remember what year?**
4 A To the best of my knowledge, it was in 1983
5 and 1984.
6 **Q Do you remember how many courses were involved**
7 **with this rule-based system research?**
8 A Say that question again.
9 **Q Do you remember how many courses you took with**
10 **respect to the rule-based system research?**
11 A I would say approximately four or five
12 graduate courses.
13 **Q Do you know who taught those courses?**
14 A The two or three that were taught by Professor
15 Bonnell, and one by Michael Huens (phonetic) and one
16 by Larry Stephens, and possibly more professors
17 **Q Did your research involve the use of**
18 **rule-based systems in VLSI design?**
19 A Yes, sir.
20 **Q Is that when you first learned of rule-based**
21 **systems in VLSI design?**
22 A Say that again.
23 **Q Is that when you first learned of rule-based**
24 **systems in VLSI design?**
25 MR. SU: Objection to form.

Page 23

1 A No, sir.
2 BY MR. OLIVER:
3 **Q When is the first time you learned of**
4 **rule-based systems in VLSI design?**
5 A That idea probably came from a course or a
6 number of courses that I took in the area of VLSI
7 design
8 **Q When did you take those courses?**
9 A Also in early or late 1983 and 1984.
10 **Q How many courses did you take in that respect?**
11 A When you say "in that respect," are you
12 referring to VLSI design?
13 **Q Rule-based systems in VLSI design.**
14 A Let me --
15 **Q Strike that. How many courses involving VLSI**
16 **design did you take that introduced you to the idea of**
17 **rule-based systems?**
18 A Well let me say one thing. The VLSI design
19 that I took did not -- has no mention about rule-based
20 design. The idea of a rule-based systems for VLSI
21 design is a research idea. The VLSI design course and
22 the rule-based system course are two separate courses.
23 **Q Did the rule-based system courses involve VLSI**
24 **design?**
25 A No, sir.

Page 24

1 **Q Do you believe you came up with the idea of**
2 **using rule-based systems for VLSI design?**
3 A To the best of my knowledge, yes. However,
4 there may be other researchers in other universities
5 who are doing the same similar thing. That I don't
6 know.
7 **Q When did you come up with the idea of using**
8 **rule-based systems in VLSI design?**
9 A That was during a class project that I had to
10 complete for the rule-based system course.
11 **Q What class project was that?**
12 A At the -- there was a course that is taught by
13 Professor Bonnell that require a class project. It is
14 in this class project that I use -- that I decided to
15 use the VLSI design as an application.
16 **Q Did you produce any of your project notes in**
17 **this litigation?**
18 A Yes, sir.
19 **Q Did you produce a paper?**
20 A Yes, sir.
21 **Q What was the name of the paper?**
22 A Actually a number of papers. The two papers
23 that I know of is -- one is the "Knowledge-Based
24 System For VLSI Module Selection."
25 **Q Are you referring to Exhibit 500, which is**

Page 25

1 **your CV?**
2 A That's correct, sir.
3 **Q What page are you referring to?**
4 A I am referring to page seven, at the bottom of
5 page seven and then at the top of page eight, the
6 paper titled, "A Framework For Managing VLSI CAD
7 Data."
8 **Q These papers that you refer to are coauthored**
9 **by Dr. Kobayashi?**
10 A That's correct.
11 **Q Didn't you say Dr. Bonnell was the instructor**
12 **for the class?**
13 A For the rule-based or at that time artificial
14 intelligence class?
15 **Q Yes.**
16 A That's correct.
17 **Q What was Dr. Kobayashi's role in the -- if**
18 **any, of the class project that you just discussed?**
19 A He was my advisor
20 **Q Did he give you the idea of applying A**
21 **rule-based system to VLSI?**
22 A No, sir.
23 **Q How did you come up with that idea?**
24 A It was part of the course.
25 **Q What was your inspiration for the idea?**

7 (Pages 22 to 25)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 26

1 A Could you explain that again.
2 **Q Did anything provide you with any unique**
3 **insight that led you to believe that applying**
4 **rule-based systems to VLSI would be a unique idea?**
5 A It is based on the papers that I have read,
6 and I felt that this is an area that needs to be
7 researched. It has not been extensively done. It's
8 not been many publications in that area.
9 **Q What year did you -- strike that. As a result**
10 **of the class project, were these papers that you**
11 **identified on pages seven and eight written?**
12 A What? Say that again.
13 **Q As a result of your class project with**
14 **Dr. Bonnell, did you write the papers indicated on**
15 **pages seven and eight of Exhibit 500?**
16 A The courses that I took under Professor
17 Bonnell has a direct influence on those two papers.
18 **Q What did you produce as a result of your class**
19 **project with Dr. Bonnell?**
20 A A class report.
21 **Q Did you a produce class report in this**
22 **litigation?**
23 A No, sir.
24 **Q Why is that?**
25 A I could not find the class report.

Page 27

1 **Q You indicated that you produced some notes; is**
2 **that correct?**
3 A That's correct
4 **Q Are you able to identify those notes?**
5 A Yes, sir
6 **Q Are the notes hand-drawn sketches?**
7 A They include both hand-drawn sketches and
8 computer -- computer-plotted diagrams.
9 **Q Is there any source code?**
10 A Yes, sir
11 **Q What type of source code?**
12 A Those source codes are written in C language.
13 **Q As a part of your class project?**
14 A That's correct.
15 **Q I'm handing you what has been marked as**
16 **Exhibits 502, 503, 504, 505, 506. Would you take a**
17 **moment to review these documents and let me know when**
18 **you're finished.**
19 A Okay.
20 MR. OLIVER: For the record, Exhibit 502 bears
21 production numbers FOO 000192 through 0198
22 Exhibit 508 bears production numbers FOO 000199
23 through 0203. Exhibit 504 bears production numbers
24 FOO 000204 through 0209. Exhibit 505 bears
25 production numbers FOO -- sorry, FOO 000216 through

Page 28

1 0226. And Exhibit 506 bears production numbers FOO
2 000256 through 263.
3 (Exhibit Nos. 502 through 506 were identified
4 for the record)
5 A Okay. I'm finished.
6 BY MR. OLIVER:
7 **Q Do Exhibits 502 through 506 comprise the notes**
8 **for your class project with Dr. Bonnell?**
9 A I would not say the Exhibits 502 through 506
10 is entirely came out of the course with Professor
11 Bonnell. Part of it, maybe, but not entirely.
12 **Q Would you turn to Exhibit 502.**
13 A (Witness complies) okay.
14 **Q Did you prepare Exhibit 502?**
15 A Yes, sir.
16 **Q When did you prepare it?**
17 A Are you referring to the entire 502?
18 **Q Are there parts of Exhibit 502 that were not**
19 **prepared at the same time?**
20 A Possibly.
21 **Q Are you able to identify those parts?**
22 A I can try.
23 **Q Are you able to identify what parts of Exhibit**
24 **502 were prepared in connection with your class**
25 **project for Dr. Bonnell?**

Page 29

1 A (Examining document) I would say page 00192,
2 00193, 00196, 00197, 00198 is inspired by a course
3 that I took with Professor Bonnell
4 **Q What do you mean by "inspired"?**
5 A Based on the material that he taught in class
6 that taught me how to take what is learned in class
7 and apply to solve a particular problem.
8 **Q Is there any part of Exhibit 502 that you**
9 **prepared in connection with your class project for**
10 **Dr. Bonnell?**
11 A Say that again.
12 **Q Is there any part of Exhibit 502 that you**
13 **prepared in connection with, not inspired by, but in**
14 **connection with, simultaneously, with your class**
15 **project for Dr. Bonnell?**
16 A I do not recall directly, since I don't have
17 the final report that I presented in the class for
18 Professor Bonnell.
19 **Q Earlier you indicated that you had notes that**
20 **you produced in this litigation that were regarding**
21 **your class project with Dr. Bonnell. Is that not**
22 **true?**
23 A The statement I made was referring -- was --
24 it was related to the material that they present in
25 the class for Professor Bonnell. But, again, like I

8 (Pages 26 to 29)

Page 30

1 mentioned, I don't have the class report, so I don't
2 know if there is any page in here that's exactly a
3 copy for the class project. This could be a draft or
4 sketch for a subsequent final report for the class.
5 **Q Can you describe your class project?**
6 A The class project is -- it's a well-defined
7 project that you -- that has an abstract title and
8 objective. And when that task is completed, you have
9 to write a final report.
10 **Q Do you remember the contents of your final**
11 **report?**
12 A To the best of my knowledge, I -- it's been so
13 many years, I just could not remember the details of
14 the final report.
15 **Q Do you believe that you showed your final**
16 **report to Dr. Kobayashi?**
17 A Possibly.
18 **Q You don't know for sure?**
19 A I don't know for sure.
20 **Q Do you believe that Dr. Kobayashi used your**
21 **final report in preparing any publications for which**
22 **he omitted your name?**
23 A That is possible
24 **Q You don't know for sure?**
25 A I don't know for sure.

Page 31

1 **Q Do you know if he did it intentionally?**
2 A I do not know for sure.
3 **Q Do you like Dr. Kobayashi?**
4 A Yes, I do like him.
5 **Q Do you believe he would do anything like that**
6 **intentionally?**
7 A I really don't know exactly, you know, what he
8 published out of the work that I presented to him,
9 because I'm working under him, and I don't question
10 his -- what he did, since he's my boss.
11 **Q At one point you switched advisors from**
12 **Dr. Kobayashi to somebody else; is that correct?**
13 A That's correct.
14 **Q Why did you do that?**
15 A The reason I did that was because Kobayashi
16 made a -- what I call a unethical or unofficial
17 requirement on me, that I have to have finished
18 published product on the cell selection module before
19 I could graduate.
20 **Q When you say a "finished published product,"**
21 **what do you mean?**
22 A Meaning a completed program that is ready to
23 be marketed.
24 **Q What do you mean "published"?**
25 A That means, you know, I say -- I said it's

Page 32

1 marketable. I didn't say "published." Did I say
2 "published"?
3 **Q Yes.**
4 A Okay. Then I should strike out that. What I
5 meant is, a product that is marketable, marketable,
6 finished product.
7 **Q Did you complete that task?**
8 A I never quite complete the task to the stage
9 where it's marketable.
10 **Q What was that product?**
11 A That product is the cell selector module.
12 **Q What does the cell selector do?**
13 A It selects a list of VLSI cells necessary to
14 implement a particular function or description, and it
15 optimize the list of cells.
16 **Q When did you complete that?**
17 A I completed the program, to the best of my
18 knowledge, in 1985 or '86.
19 **Q What was the name of that program?**
20 A The program started out with the name Fame,
21 and then it evolved into a subsequent version of it
22 called Neptune.
23 **Q When was it called Neptune?**
24 A It was called Neptune, I believe, in 1986.
25 **Q Did it have the same functionality that you**

Page 33

1 just described?
2 A It just have improved functionality of the
3 earlier version of Fame.
4 **Q Both Fame and Neptune selected a list of VLSI**
5 **cells to implement?**
6 A That's correct, sir.
7 **Q What did you mean when you said "cells"?**
8 A Cells are the building blocks of integrated
9 circuits necessary to implement a particular function.
10 **Q Can you give us an example?**
11 A For example, an adder, it takes two numbers,
12 add them and then produce one output.
13 **Q Were the cells defining a particular type of**
14 **adder?**
15 A That's correct. That could be different cells
16 of the same function.
17 **Q Why did you call them cells?**
18 A The reason we call them cells, because these
19 are the basic building blocks, just like in the tree
20 structure, at the bottom of a tree structure is, you
21 know, the leaves or the cells.
22 **Q Were these cells technology specific?**
23 A Yes, sir.
24 **Q What was the smallest building block?**
25 A The smallest building block is a transistor.

Page 34

1 **Q Have you called them modules before?**
 2 A That's correct.
 3 **Q Do you find cells and modules to be**
 4 **interchangeable?**
 5 A That's correct.
 6 **Q Just so we're clear, you do not have any notes**
 7 **or papers that reflect the final product from your**
 8 **class project with Dr. Bonnell; is that correct?**
 9 A Say that again.
 10 **Q You do not have any notes or other papers that**
 11 **reflect the final product produced pursuant to your**
 12 **class project with Dr. Bonnell; is that correct?**
 13 A That's correct.
 14 **Q Why didn't you write your master thesis on the**
 15 **use of rule-based systems in VLSI?**
 16 A I believe the reason was, at that time I
 17 was -- I was very much interested in the database
 18 design course that was offered by Professor Bonnell.
 19 **Q Did you not think the rule-based application**
 20 **in VLSI was significant work?**
 21 A Subsequently when I took the rule-based
 22 systems, I learned that it was -- it was going to be
 23 the new trend in the VLSI design.
 24 **Q Why didn't you pursue it?**
 25 A The master's thesis was inspired by the

Page 35

1 earlier course that I took under Professor Bonnell,
 2 which is the database system. So I took that database
 3 systems under Bonnell first. And then subsequently I
 4 took another course or two under Professor Bonnell in
 5 the area of artificial intelligence or rule-based
 6 knowledge-based systems.
 7 **Q After your master thesis was already**
 8 **completed?**
 9 A Probably in the process.
 10 **Q Why didn't you pursue rule-based systems in**
 11 **VLSI for your Ph.D.?**
 12 A I would have, and I should have, and I could
 13 have, but remember I told you earlier about the
 14 requirement from Dr. Kobayashi for me to graduate,
 15 that requirement to me is not acceptable. So it was
 16 subsequently I parted ways with him.
 17 And I clearly remember when I parted ways with
 18 him, he told me that I cannot work in that area
 19 anymore, as long as I stay in University of South
 20 Carolina.
 21 **Q What year was that?**
 22 A That happened in -- to the best of my
 23 knowledge, that happened in early part of 1987.
 24 **Q Were you working under Dr. Kobayashi at the**
 25 **University of South Carolina?**

Page 36

1 A I was working as a research associate,
 2 research assistant under him.
 3 **Q At the University of South Carolina?**
 4 A That's correct, sir.
 5 **Q Did you not work at his company, ICC?**
 6 A I did as a consultant, sir.
 7 **Q When did you work as a consultant for ICC?**
 8 A I believe that was in 1986 and early part of
 9 '87.
 10 **Q When Dr. Kobayashi allegedly made this**
 11 **requirement to have a finished, published product,**
 12 **were you working for ICC?**
 13 A That's correct.
 14 **Q Was he requiring you to make this product for**
 15 **ICC?**
 16 A Say that again
 17 **Q Was he requiring you to make this product for**
 18 **ICC?**
 19 A Which product are you referring to?
 20 **Q The commercial or marketable product that you**
 21 **later called Neptune, the cell selector.**
 22 A Okay. And what was the question again?
 23 **Q Whether or not Dr. Kobayashi was requiring you**
 24 **to make this product for ICC.**
 25 A That's correct.

Page 37

1 **Q So his demands weren't for your degree, but**
 2 **for ICC?**
 3 A Say that again
 4 **Q His demands to have a commercial product were**
 5 **for the company ICC, not for the University of South**
 6 **Carolina; isn't that correct?**
 7 A That's not for my degree.
 8 **Q Exactly. It's not -- it wasn't for your**
 9 **degree. It was for his company, ICC; right?**
 10 A That's correct.
 11 **Q So he wasn't demanding that you make the**
 12 **product so that you graduate, he was demanding that**
 13 **you make the product because you were also an employee**
 14 **or consultant for ICC; isn't that correct?**
 15 A No. No. I think you have misunderstood here
 16 What happened is this: The line between academia and
 17 his company was blurred; okay? And when he made that
 18 requirement that I got to have the finished product
 19 marketable for ICC before I could graduate, now to me
 20 that is a conflict of interest.
 21 **Q Did he do that because he thought that your**
 22 **work to date had not been fully researched?**
 23 A Say that again
 24 **Q Did he make that requirement because your work**
 25 **to date had not been fully researched?**

10 (Pages 34 to 37)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 38

1 MR. SU: Objection to form.
2 A Fully researched by who?
3 BY MR. OLIVER:
4 Q You.
5 A By me?
6 Q Yes.
7 A I still don't get your question.
8 Q Did he make the requirement that you have a
9 marketable product because he felt that your work to
10 date had not been fully researched?
11 A Fully researched? What do you mean by "fully
12 researched"?
13 Q It was not complete.
14 A My work was completed when we made those
15 publications.
16 Q Your work for your master's?
17 A No, for the dissertation.
18 Q For your Ph.D.?
19 A That's correct, yeah.
20 Q What was your dissertation on for your Ph.D.?
21 A My dissertation was on neural networks for job
22 shop scheduling.
23 Q How was Dr. Kobayashi able to somehow restrict
24 your ability to graduate with a Ph.D. by requiring you
25 to have a marketable product?

Page 39

1 A That was his verbal condition to me before I
2 could defend my dissertation. So, in other words, if
3 I don't get his marketable product completed, he would
4 not have the defense and certainly would not even sign
5 the dissertation.
6 So if that dissertation is not signed, you
7 don't graduate.
8 Q Were you already working in -- towards your
9 neural networks dissertation at that time?
10 A No, sir. I did not neural network
11 dissertation after I parted ways with Dr. Kobayashi.
12 Q So what topic was he going to refuse to defend
13 by not having you produce a marketable product?
14 MR. SU: Objection as to form.
15 A Could you say that question again?
16 BY MR. OLIVER:
17 Q What topic were you working towards a Ph.D. at
18 that time that he was requiring you to have a
19 marketable product before you graduated?
20 A Are you talking about Dr. Kobayashi?
21 Q Yes.
22 A Okay. He was the -- the dissertation I was
23 referring to for Kobayashi is going to be on the cell
24 selection.
25 Q So originally you were going to have a

Page 40

1 master -- a Ph.D. dissertation on cell selection?
2 A That's correct, a knowledge-based cell
3 selection system.
4 Q Why did you change to neural networks?
5 A The reason I had to switch over to a neural
6 networks is because Dr. Kobayashi, who was a tenured
7 professor at that time in the department, he has the,
8 you know, authority, I'm pretty sure. And he told me
9 specifically that if I left him, that I cannot pursue
10 anything, any topic in the area of VLSI research, that
11 I have to do something outside of that area.
12 Q And despite all that, you still like him?
13 A I think he's a nice person.
14 Q Despite that?
15 A Yes.
16 Q Would you like to take a break?
17 A Yes.
18 (Short recess).
19 MR. OLIVER: Back on the record.
20 A I would like to clarify two items that were
21 discussed earlier. One is the program called Fame.
22 There is -- and Neptune. There is a distinction
23 between the two. The Fame is a frame-based database
24 system for managing VLSI design, whereas Neptune is a
25 frame-based database system with a cell selection

Page 41

1 algorithm incorporated in it.
2 And the second clarification is that the
3 Exhibit 502 through 506 are not notes directly from
4 Professor Bonnell's class. Those are not class notes.
5 Q Why did you make that clarification?
6 A Say that again.
7 Q Why did you make those clarifications?
8 A On further thoughts, I may have, you know,
9 accidentally implied that they are class notes, when
10 they are not.
11 Q On the first clarification?
12 A On the second clarification.
13 Q And on the first clarification --
14 A That's correct, yes.
15 Q What made you make that clarification?
16 A Because earlier I may have implied that Fame
17 and Neptune are the same thing, when in fact that they
18 are not.
19 Q Did your attorney advise you that you should
20 make these clarifications?
21 MR. SU: Objection, privilege.
22 BY MR. OLIVER:
23 Q Just a simple yes or no.
24 MR. SU: I instruct the witness not to answer
25 BY MR. OLIVER:

11 (Pages 38 to 41)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 42

1 **Q Will you answer the question?**
2 A On the advice of my attorney, I would not.
3 **Q Is there a difference between a frame-based**
4 **system and a rule-based system?**
5 A Yes, sir.
6 **Q What is the difference?**
7 A A frame-based system is basically a
8 representation system for storing information, whereas
9 a rule-based system is a system for making decisions.
10 **Q Can you have a rule-based system that utilizes**
11 **a frame-based database?**
12 A That's correct.
13 **Q Would you turn back to Exhibit 502.**
14 A (Witness complies).
15 **Q I believe earlier you said certain pages of**
16 **Exhibit 502 were inspired by your class with**
17 **Dr. Bonnell; isn't that correct?**
18 A That's correct, sir.
19 **Q Why were they inspired by your class with**
20 **Dr. Bonnell?**
21 A Because the descriptions are rule-based
22 descriptions.
23 **Q Is that the only reason?**
24 A That's correct.
25 **Q You prepared all of the pages of Exhibit 502;**

Page 43

1 **is that correct?**
2 A That's correct, sir.
3 **Q Did you have assistance from anyone else?**
4 A Say that again.
5 **Q Did you have assistance from anyone else?**
6 A No, sir.
7 **Q When did you prepare Exhibit 502?**
8 A Are you talking about the time frame?
9 **Q Yes.**
10 A This documents were prepared, to the best of
11 my knowledge, in early part of May.
12 **Q What year?**
13 A 2006.
14 **Q Why did you prepare these?**
15 A On the advice of my attorney.
16 **Q So prior to May 2006, Exhibit 502 did not**
17 **exist?**
18 A They do exist.
19 **Q Let's step back. When did you prepare**
20 **originally the pages of Exhibit 502?**
21 A No. I think we -- I think I misunderstood
22 your earlier question. When you said "prepared," are
23 you talking about producing the documents?
24 **Q Create the ideas on this page.**
25 A Oh, okay. Now I misunderstood your question.

Page 44

1 **Q Let's go back and restate it. When did you**
2 **prepare the writings of Exhibit 502?**
3 A The ideas in 502 were prepared in 1984 and
4 1985 -- between '84 and '86 I would say.
5 **Q How can you be sure?**
6 A It was during those -- it was during the time
7 when I was taking all of my graduate courses.
8 **Q Were the pages of Exhibit 502 from a notebook**
9 **of yours?**
10 A They were derived from a notebook, yes. Yes,
11 sir.
12 **Q What do you mean "derived from a notebook"?**
13 A For example, figure 1 came from a sketch.
14 **Q Figure 1, what page?**
15 A Figure 1 of page 00192 of Exhibit 502.
16 **Q Did you prepare page 192 on a computer?**
17 A Yes, sir.
18 **Q Did you retain a copy of a printout of that**
19 **computer as page 192?**
20 A When you say "printout," are you talking about
21 the original printout from the computer that plotted
22 it or --?
23 **Q Yes.**
24 A I believe I have the original copy, yes, sir.
25 **Q Is page 192 a copy of a printed page?**

Page 45

1 A When you say -- what do you mean by "printed
2 page"?
3 **Q When you were asked to produce page 192 of**
4 **Exhibit 502, did you copy a printed page from your**
5 **files, or did you print the page from some computer**
6 **storage mechanism?**
7 A Do you mean at that time, back in '84, '86?
8 **Q In May 2006.**
9 A Oh, you're talking May 2006. I went to
10 Kinko's and made copies of the originals.
11 **Q The originals were hard copies; is that**
12 **correct?**
13 A That's correct, sir.
14 **Q Is that true of all the papers that you**
15 **produced in this litigation?**
16 A The -- I have originals.
17 **Q Hard copies?**
18 A Yes, sir.
19 **Q And you had saved all the hard copies for over**
20 **20 years; is that correct?**
21 A That's correct.
22 **Q Why did you save them all?**
23 A I save along with all my notes from as far
24 back as I could in case if I ever need to refresh my
25 memory.

12 (Pages 42 to 45)

Page 46

1 **Q Do you have any electronic copies of any of**
 2 **your work dating back to the early '80s?**
 3 **A Unfortunately, they were all destroyed.**
 4 **Q The source code that you produced in this**
 5 **litigation came from hard copies; is that correct?**
 6 **A I have the source code. I have both the hard**
 7 **copies and the electronic copy.**
 8 **Q So when you said that all the electronic**
 9 **copies were destroyed, what were you talking about?**
 10 **A I'm talking about the documents. I'm not**
 11 **talking about source codes.**
 12 **Q So for the source code you have electronic**
 13 **copies and hard copies; is that right?**
 14 **A That's correct, sir.**
 15 **Q Do you have any electronic copies of any other**
 16 **documents or other papers?**
 17 **A No, sir.**
 18 **Q When you produced the source code for this**
 19 **litigation, did you copy hard copies, or did you print**
 20 **out pages from your electronic copies?**
 21 **A I print out copies from my electronic copy.**
 22 **Q Do you have the original disks?**
 23 **A What do you mean by "original disks"?**
 24 **Q I'm sorry. Do you have the electronic copies**
 25 **stored somewhere?**

Page 47

1 **A Yes, sir.**
 2 **Q Where are they stored?**
 3 **A On my computer in my office.**
 4 **Q In your office at your work?**
 5 **A That's correct, sir.**
 6 **Q University of -- I'm sorry, Florida State**
 7 **University?**
 8 **A That's correct, sir.**
 9 **Q Why do you have copies on your computer at**
 10 **work?**
 11 **A I always try to keep copies of my source code,**
 12 **because that is my property, my intellectual property.**
 13 **Q The source code was created in 1986; right?**
 14 **A That's correct, somewhere between '84 and '86.**
 15 **Q And you retained a copy?**
 16 **A That's correct.**
 17 **Q Did it belong to you?**
 18 **A I -- yes, sir.**
 19 **Q You didn't sign an agreement with the**
 20 **University of South Carolina that all intellectual**
 21 **property belonged to the university?**
 22 **A I don't recall that.**
 23 **Q You didn't sign an agreement with ICC that all**
 24 **intellectual property --**
 25 **A I don't recall that either.**

Page 48

1 **Q You have no doubt, though, that you may have**
 2 **signed something; right?**
 3 **A I don't recall signing any nondisclosure**
 4 **agreement.**
 5 **Q That wasn't the question. Do you have any**
 6 **doubt that you signed such an agreement regarding the**
 7 **intellectual property ownership?**
 8 **A Say that again.**
 9 **Q You don't -- do you have any doubt that you**
 10 **signed an agreement regarding intellectual property?**
 11 **A To the best of my knowledge, I did not sign an**
 12 **agreement.**
 13 **Q Did you sign any agreements with ICC when you**
 14 **became a consultant for ICC?**
 15 **A No, sir.**
 16 **Q None whatsoever?**
 17 **A Not to the best of my knowledge.**
 18 **Q Would you be surprised if it turns out that**
 19 **you did sign such an agreement?**
 20 **A I would be surprised.**
 21 **Q Did you sign any agreements with University of**
 22 **South Carolina when you were a graduate student?**
 23 **A I don't recall signing an agreement.**
 24 **Q Were you given any type of compensation while**
 25 **you were a graduate student from the University of**

Page 49

1 **South Carolina?**
 2 **A The only compensation was a stipend.**
 3 **Q Did you understand that as a graduate student**
 4 **that you were an employee of the university?**
 5 **A I don't recall understanding that kind of**
 6 **employment back then.**
 7 **Q Did you understand that at the University of**
 8 **South Carolina it was their policy that any work that**
 9 **was performed using their resources was the property**
 10 **of University of South Carolina?**
 11 **A It's possible.**
 12 **Q So isn't it possible that the copies you**
 13 **retained in your computer in Florida State University**
 14 **are the property of University of South Carolina?**
 15 **A Possible.**
 16 **Q Just to be clear, the copies of the source**
 17 **code that you produced in this litigation are**
 18 **printouts from your computer in the Florida State**
 19 **University; is that right?**
 20 **A That's correct, sir.**
 21 **Q Do you have any other electronic copies of**
 22 **that source code?**
 23 **A What do you mean by "other electronic copies"?**
 24 **Q Other than on your computer at Florida State**
 25 **University?**

13 (Pages 46 to 49)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 50

1 A Those are the only place I store them, sir.
2 **Q You don't have any personal copies at your**
3 **home?**
4 A Well that is mine, I guess.
5 **Q I'm sorry. Turning back to Exhibit 502.**
6 A Okay.
7 **Q Do you know the date in which you created page**
8 **0193?**
9 A To the best of my knowledge, this sketch was
10 produced in either '84 or '85, in that area.
11 **Q Not '86?**
12 A Possible.
13 **Q Is it possible it was created in 1987?**
14 A No.
15 **Q Why is that?**
16 A In '87, most of the preliminary work has
17 already been completed.
18 **Q You said that Dr. Kobayashi put a requirement**
19 **on you to have a marketable product in 1987; isn't**
20 **that correct?**
21 A That's correct, sir.
22 **Q Did you say that you completed that product?**
23 A I finish writing the code. However, it is not
24 in a state where it's marketable.
25 **Q When did you finish writing the code?**

Page 51

1 A The code was probably completed in '86.
2 **Q Do you know when in 1986?**
3 A I don't recall exactly.
4 **Q Do you know exactly when in 1987 Dr. Kobayashi**
5 **made this requirement of you?**
6 A It was in early '87, spring of '87.
7 **Q Do you know if the product -- which I believe**
8 **was in Neptune; is that correct?**
9 A Yes, sir.
10 **Q -- was further revised by others after you**
11 **left?**
12 A I'm not aware of it.
13 **Q Would you be surprised if it was?**
14 A Yes. I would be a little bit surprised
15 **Q If it wasn't marketable, why would you be so**
16 **surprised that it was revised?**
17 A Say that again.
18 **Q If the product was at that time not**
19 **marketable, why would you be so surprised that it was**
20 **revised?**
21 A When I say "not marketable," I meant that
22 program is not well documented. It has not been well
23 tested to perform in the real environment.
24 **Q So as far as you know, it didn't work, because**
25 **it hadn't been well tested?**

Page 52

1 A That's not true. That's not true.
2 **Q You said it wasn't well tested; right?**
3 A Well tested means -- it has been tested, but,
4 you know, you could extensively test, and that's going
5 to require a lot of time. And I never had the time to
6 extensively test it.
7 **Q Why would you bother to extensively test it if**
8 **you knew it was going to work anyway?**
9 A You can never be so sure of --
10 **Q So isn't it possible that, because of the**
11 **testing, that the program had to be revised to make it**
12 **marketable?**
13 A That's correct.
14 **Q So it is possible; right?**
15 A Possible on what?
16 **Q That someone would have to revise the program**
17 **to make it marketable?**
18 MR. SU: Objection, speculation.
19 A It is possible to further refine that program.
20 BY MR. OLIVER:
21 **Q You have no knowledge whatsoever, however,**
22 **that it was ever used in any commercial product; isn't**
23 **that right?**
24 A Say that again.
25 **Q You have no knowledge whatsoever whether or**

Page 53

1 **not the Neptune program was ever used in any**
2 **commercial product?**
3 A Not to my knowledge.
4 **Q As far as you know they could have used a**
5 **completely different program; isn't that correct?**
6 A Say that again.
7 **Q As far as you know ICC could have used a**
8 **completely different cell selector program?**
9 MR. SU: Objection as to form.
10 A I seriously doubt it.
11 BY MR. OLIVER:
12 **Q Why is that?**
13 A Because I have been working on the cell
14 selection module, and nobody else that I know of has
15 worked on that. And the cell selection module is the
16 necessary module for the silicon compiling.
17 **Q What silicon compiler?**
18 A The knowledge-based silicon compiler.
19 **Q What is the knowledge-based silicone compiler?**
20 A That is the idea that I sketched in Exhibit --
21 let me try to find it -- in Exhibit 503, page 00199.
22 **Q Did you coin the phrase, knowledge-based**
23 **silicon compiler?**
24 A That's correct, sir.
25 **Q How did you coin that phrase?**

14 (Pages 50 to 53)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 54

1 A It came from -- it is probably inspired by the
2 courses I took in rule-based systems.
3 Q No one else gave you the idea for that name?
4 A That's correct
5 Q Dr. Kobayashi didn't come up with that name
6 himself?
7 A I don't recall it. I don't recall that he
8 gave me any input in that title.
9 Q Do you recall that he gave you -- that he came
10 up with the idea?
11 A No, no. I -- that was my original idea.
12 Q Did you document the idea?
13 A The only document I have is this hand-sketched
14 diagram.
15 Q When did you create this hand-sketched diagram
16 which is Exhibit 503, page 199?
17 A I believe, to the best of my knowledge, this
18 sketch was made in 1985.
19 Q Did you come up with all the idea reflected in
20 this page 199?
21 A When -- what do you mean by "all of the
22 ideas"?
23 Q Did you, for example, come up with the idea of
24 using the AAF language?
25 A I am not the inventor of AAF language.

Page 55

1 Q Did you know to use the AAF for the KBSC
2 system?
3 A Yes.
4 Q That was your idea?
5 A The AAF already existed.
6 Q The use of the AAF in the KBSC did not exist
7 prior to your idea; isn't that correct?
8 A All I can say is that this configuration, this
9 system was my original idea.
10 Q Everything on this page 199 was your idea
11 alone; is that correct?
12 A That's correct, sir.
13 Q Did you ever apply for a patent on this idea?
14 A No, sir.
15 Q Why is that?
16 A I'm not aware of what a patent is at that
17 time, sir.
18 Q Do you know exactly when in 1985 you came up
19 with this sketch, 199?
20 A My estimate would be the early part of 1985.
21 Q And you have no other documentation that
22 reflects your idea regarding the KBSC system; is that
23 correct?
24 A To the best of my knowledge, I don't have any
25 of those

Page 56

1 Q No other pages of Exhibit 503 reflect the KBSC
2 system; is that correct?
3 A (Examining document). To the best of my
4 knowledge, I do not have any other documentation that
5 has the title "knowledge-based silicon compiler" in my
6 possession, except this page 00199 on Exhibit 503.
7 Q Did you show this sketch to anyone?
8 A Yes, sir.
9 Q Who did you show it to?
10 A I showed it to my counsel.
11 Q In early 1990 -- in early 1985 or any time
12 around early 1985, did you show this sketch to anyone?
13 A Yes, sir.
14 Q Who did you show it to?
15 A I -- I may have showed it to my advisor,
16 Dr. Kobayashi.
17 Q When?
18 A My estimate would be 1985.
19 Q Do you have a clear recollection of showing it
20 to Dr. Kobayashi?
21 A I always meet with him once or twice a week.
22 Q Do you show him everything you do?
23 A I would say most of the work I did.
24 Q Do you have any record of showing
25 Dr. Kobayashi?

Page 57

1 A No, sir.
2 Q Did you show it to anyone else?
3 A No, sir.
4 Q Why not?
5 A There is no reason to.
6 Q Why?
7 A Who would I show it to?
8 Q I don't know. Dr. Bonnell?
9 A No, sir.
10 Q Wouldn't Dr. Bonnell fully appreciate having a
11 rule-based system applied to VLSI?
12 A No, sir.
13 Q He wouldn't? Why is that?
14 A He was not really interested in VLSI, to the
15 best of my knowledge.
16 Q He's interested in rule-based systems; isn't
17 that correct?
18 A That's correct.
19 Q In fact, you used a rule-based system in VLSI
20 for his class project; right?
21 A That's correct.
22 Q Wouldn't this be a follow-up to your class
23 project?
24 A Somewhat, yes.
25 Q You're not saying that Exhibit 503, page 199,

15 (Pages 54 to 57)

Page 58

1 **was your class project; are you?**

2 A Are you talking about this particular page,
3 00199?

4 **Q Yes. Yes.**

5 A To the best of my recollection, I -- this is
6 just a sketch. I have no idea what the final product
7 is for the class project.

8 **Q How did you come up with this sketch?**

9 A It actually evolved. You can see in the top
10 part of the page, I have a computer-generated diagram
11 that I made. And then later I made some corrections
12 on it, and then I revised it. And you can see my
13 hand-sketched notes through the evolution of the
14 design.

15 **Q What problem were you trying to solve at the
16 time?**

17 A The problem I'm trying to solve is to
18 translate a behavioral language description into
19 silicon.

20 **Q Where did you get that idea?**

21 A The idea was inspired by the courses that I
22 took.

23 **Q I'm sorry. Where did you get the appreciation
24 for that problem?**

25 A This project was inspired by the courses that

Page 59

1 I took.

2 **Q Do you know what courses inspired you?**

3 A To the best of my recollection, those are the
4 courses that were -- that I took under Professor
5 Bonnell, and there was a one VLSI course that I took
6 under Dr. Peeples.

7 **Q Who is Dr. Peeples?**

8 A Dr. Peeples is an adjunct professor from NCR
9 at that time

10 **Q What, in his course, inspired you to solve the
11 problem of translating behavioral language description
12 into silicon?**

13 A Dr. Peeples taught me the basics of
14 transistors and integrated circuits, and Professor
15 Bonnell taught me the rule-based systems and
16 artificial intelligence.

17 **Q How did you even know there were different
18 abstract levels of input design for a system?**

19 A It could be based on the papers that I have
20 read

21 **Q What papers did you read?**

22 A At that time I used to go to the library and
23 read up on the VLSI design.

24 **Q Can you identify any papers today?**

25 A Some of the journals or magazines that I read,

Page 60

1 one of them is called EDN.

2 **Q Is there a particular article in EDN that --**

3 A I don't recall a particular issue. It was in
4 1984, '85 time frame.

5 **Q Did you publish any papers that describe the
6 KBSC system?**

7 A Indirectly, yes.

8 **Q What did you publish?**

9 A The paper on the knowledge-based VLSI cell
10 selection paper.

11 **Q The paper with Dr. Kobayashi?**

12 A That's correct, sir.

13 **Q Handing you what has been marked as Exhibit
14 508, bearing production number KBSC 00914 through
15 0917. Is Exhibit 508 the "Knowledge-Based System For
16 VLSI Module Selection" paper that you are describing?**

17 A Say that again, sir.

18 **Q Is Exhibit 508 the paper that you are
19 describing?**

20 A That's correct, sir.

21 **Q Other than this paper of Exhibit 508, was
22 there any other paper that described the KBSC system
23 you sketched on Exhibit 503?**

24 A Another paper is the "A Framework For Managing
25 VLSI CAD Data."

Page 61

1 **Q Handing you what has been marked as Exhibit
2 509, bearing production numbers KBSC 000904 through
3 0913. Is Exhibit 509 the framework paper you just
4 discussed?**

5 A That's correct, sir
6 (Exhibit No. 509 was identified for the
7 record).

8 BY MR. OLIVER

9 **Q Other than Exhibit 508 and 509, are there any
10 other papers that describe KBSC system of Exhibit 503?**

11 A Yes, sir.

12 **Q What papers?**

13 A There was another unpublished manuscript.

14 **Q Handing you what has been marked Exhibit 510,
15 bearing production number FOO 000239 through 0255. Is
16 Exhibit 510 an unpublished manuscript that you just
17 discussed?**

18 A That's correct, sir.

19 (Exhibit No. 510 was identified for the
20 record).

21 BY MR. OLIVER

22 **Q Other than Exhibits 508, 509 and 510, are
23 there any papers that describe the KBSC system of
24 Exhibit 503?**

25 A To the best of my knowledge, there is no other

16 (Pages 58 to 61)

Page 62

1 papers.
2 **Q All of the papers in Exhibits 508, 509 and 510**
3 **have Dr. Kobayashi as coauthor; isn't that correct?**
4 A That's correct, sir.
5 **Q Why is that?**
6 A The reason is, he is my advisor.
7 **Q Is it customary to have your advisor placed on**
8 **your publications?**
9 A That's correct, sir.
10 **Q Do you believe Dr. Kobayashi contributed ideas**
11 **to the papers of Exhibits 508, 509 and 510?**
12 A What do you mean by "ideas"?
13 **Q Anything that's reflected in Exhibits 508**
14 **through 510.**
15 A Again, can I clarify, what do you mean by
16 "ideas"?
17 **Q Do you have any understanding of the term**
18 **"ideas"?**
19 A Ideas about the paper?
20 **Q Anything. Was there any contribution by**
21 **Dr. Kobayashi, for example, in writing Exhibit 508?**
22 A He helped me with the grammar and the
23 technical writing skills.
24 **Q Was that his only contribution?**
25 A I believe so.

Page 63

1 **Q He did not provide you with any technical**
2 **input?**
3 A Not that I know of.
4 **Q Did he provide any technical input for**
5 **Exhibits 509 or 510?**
6 A No, sir.
7 **Q Exhibit 508 indicates on page 0914 that the**
8 **work was supported by International Chip Corporation;**
9 **is that correct?**
10 A That is correct. And that is what he wanted
11 me to put it down in the paper.
12 **Q Is it not true?**
13 A I did not say it's not true. I said that's
14 what he wanted to be on the paper.
15 **Q Was the work in Exhibit 508 supported by ICC?**
16 A Not totally.
17 **Q In any respect?**
18 A Partially, yes.
19 **Q How was it supported by ICC?**
20 A I -- to the best of my knowledge, because
21 Kobayashi, who is my advisor, is also the -- I guess
22 the founder of ICC, he could have put the company
23 as -- as part of the sponsor. Again, it is not my
24 intention to put the name of the company.
25 **Q What do you mean "sponsor"?**

Page 64

1 A Again, like I mentioned, Kobayashi is the
2 founder of this company, and since he's my advisor, he
3 has a prerogative to, you know, to put -- to list
4 whoever, you know, whoever the sponsor is.
5 **Q Were you a graduate student at the time that**
6 **you wrote this paper of Exhibit 508?**
7 A That's correct, sir.
8 **Q Were you a graduate student when you came up**
9 **with the idea for Exhibit 503?**
10 A I was a graduate student, sir.
11 **Q When you're a graduate student, don't you work**
12 **on projects that are sponsored by either the**
13 **university or an industry?**
14 A That's correct.
15 **Q Do you ever work on projects that are not**
16 **sponsored?**
17 A That's correct, sir.
18 **Q Was the KBSC system a project that was**
19 **sponsored?**
20 A I'm not aware of the sponsorship.
21 **Q There could have been sponsors; is that**
22 **correct?**
23 A It could be.
24 **Q How does the sponsorship work?**
25 A Sponsorship means there is monetary funds

Page 65

1 involved, according to my knowledge.
2 **Q That's where the stipend comes in; is that**
3 **right?**
4 A The stipend was through the college of
5 engineering, sir.
6 **Q You're not paid through the sponsorship?**
7 A Not to my knowledge.
8 **Q Not directly?**
9 A Not to the best of my knowledge.
10 **Q When you created the KBSC system of Exhibit**
11 **503, did you use any university resources?**
12 A Yes, sir.
13 **Q What did you use?**
14 A The computer.
15 **Q Anything else?**
16 A The paper.
17 **Q Did you develop the KBSC system at the**
18 **university?**
19 A That's correct, sir.
20 **Q Did you have a working prototype?**
21 A It was a paper design, sir.
22 **Q You never had a prototype?**
23 A Prototype of what?
24 **Q The KBSC system that you have in Exhibit 503.**
25 A Are you talking about the entire system?

17 (Pages 62 to 65)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 66

1 Q Yes.
2 A I don't have the entire system, sir.
3 Q You invented it; right?
4 A The idea was mine.
5 Q The entire system; right?
6 A The -- what is on this page was my original
7 idea.
8 Q What is the output of what's on this page?
9 A It goes to the module placement and routing.
10 Q What is a module?
11 A Which is a cell.
12 Q What is a cell?
13 A The integrated circuits building blocks.
14 Q Do you define that on the page?
15 A It is understood, sir.
16 Q How is it understood from the page?
17 A This sketch is for my own use.
18 Q Did you ever develop any portion of your KBSC
19 system?
20 MR. SU: Object as to form.
21 A Say that again, sir.
22 BY MR. OLIVER:
23 Q Did you ever develop any portion of the KBSC
24 system shown in Exhibit 503?
25 A Yes, sir.

Page 67

1 Q What portion?
2 A I believe I developed the parser and the
3 module selection and the knowledge base.
4 Q How did you develop the knowledge base?
5 A It is based on an expertise that's an IC
6 designer.
7 Q Are you an IC designer?
8 A Yes, sir.
9 Q So it was your own expertise?
10 A That's correct, sir.
11 Q Did you have any expertise from anyone else?
12 A I could use somebody else's I expect.
13 Q Did you?
14 A No, I did not, sir.
15 Q What type of expertise did you have in the
16 system?
17 A What system are you referring to?
18 Q The system of Exhibit 503.
19 A Could you elaborate more? What expertise are
20 you referring to?
21 Q You said you used expertise of your own in the
22 system. What expertise did you put in the system?
23 MR. SU: Objection, misstates prior testimony.
24 A I don't understand your question, sir.
25 BY MR. OLIVER:

Page 68

1 Q I would like you to just explain what type of
2 expertise was put in the knowledge base of Exhibit
3 503.
4 A The expertise is the expertise from the IC
5 designer.
6 Q What type of expertise?
7 A For example, the power dissipation, the
8 propagation delay and the area of the cell.
9 Q How is that expertise?
10 A That is not just the only expertise. You
11 know, there are other expertise involved --
12 Q At the time you created Exhibit 503, what type
13 of expertise was in the knowledge base?
14 A The expertise is -- for example, a particular
15 function could be implemented in a number of ways, and
16 each way has some trade-off. And the question is, you
17 know, how do you pick which one to get optimum
18 performance.
19 Q Can you give us an example?
20 A An example would be an adder. We can have a
21 ripple adder, which takes up a lot of space and is
22 very slow, and you can have a faster adder, like a
23 carry safe adder, but it takes up a lot of space and
24 is much harder to design.
25 Q Is there any other rules -- I'm sorry,

Page 69

1 expertise?
2 A There are other expertise.
3 Q What other expertise?
4 A Expertise on the database, on the knowledge
5 base?
6 Q Yes.
7 A I believe those are the predominant ones.
8 Q Any others that you know of?
9 A Not that I know of.
10 Q Did you have this expertise in mind when you
11 created the hand sketch of Exhibit 503?
12 A Yes, sir.
13 Q Simultaneously with the hand sketch?
14 A Yes, sir.
15 Q What year did you say you drew this?
16 A I believe this was drawn in early 1985.
17 Q How can you be sure?
18 A That is just my estimate, based on the courses
19 I have taken at that time.
20 Q Did you keep a lab notebook?
21 A My lab notebook are basically my sketches like
22 this.
23 Q Was this sketch of Exhibit 503 bound in a
24 notebook?
25 A No, sir.

18 (Pages 66 to 69)

Page 70

1 **Q Was it just loose?**
 2 A Yes, sir.
 3 **Q Was it in a folder?**
 4 A That's correct, sir.
 5 **Q What type of folder?**
 6 A It's like a manilla folder
 7 **Q Did the manilla folder have a label?**
 8 A Say that again.
 9 **Q Did the folder have a label?**
 10 A Probably, yes.
 11 **Q What did the label say?**
 12 A Probably the label would say, knowledge-based
 13 system, something like that.
 14 **Q You didn't produce the folder.**
 15 A The folders probably are lost.
 16 **Q So when you retrieved this document, was it in**
 17 **a folder at the time?**
 18 A No. It was not in a folder. It was loose.
 19 Now the fold every was -- at that time, you are
 20 talking about some 20 years ago. But in the process
 21 of moving and, you know --.
 22 **Q You did not get the KBSC system -- strike**
 23 **that. You did not get the idea for the KBSC system**
 24 **from Dr. Kobayashi; is that your testimony?**
 25 A That's correct, sir.

Page 71

1 **Q Do you have any doubt on that?**
 2 A No, I don't have any doubt on that.
 3 **Q How can you be so sure?**
 4 A To the best of my knowledge, that is my
 5 original work, sir.
 6 **Q You met with him weekly; right?**
 7 A That's correct.
 8 **Q You discussed all the topics?**
 9 A I don't discuss everything.
 10 **Q Did he ever discuss his work with you?**
 11 A What work are you talking about? What work
 12 are you referring?
 13 **Q I don't know. Did he ever discuss any of his**
 14 **work with you?**
 15 A Yes, some work.
 16 **Q Did he discuss any rule-based systems with**
 17 **you?**
 18 A No.
 19 **Q Ever?**
 20 A No.
 21 **Q Not even during your work at ICC?**
 22 A The discussion on the knowledge-based systems
 23 was after we published these papers, which is Exhibit
 24 508
 25 **Q You worked as a consultant in 1986 for ICC; is**

Page 72

1 **that correct?**
 2 A That's correct, sir.
 3 **Q What did you do as a consultant?**
 4 A I wrote -- I advise on what needs to be --
 5 what is needed to make a knowledge-based, you know,
 6 component.
 7 **Q What did you do?**
 8 A My specific task that was assigned to me is
 9 the module selection.
 10 **Q Do you know what the company was working on at**
 11 **the time?**
 12 A At that time I was just a graduate student,
 13 and I'm not involved in the administrative work.
 14 **Q Do you know if your module selector was part**
 15 **of a bigger system?**
 16 A Yes, possible.
 17 **Q What was the bigger system?**
 18 A It was to a compiler.
 19 **Q Did you know it was a knowledge-based**
 20 **compiler?**
 21 A I'm not sure what -- I believe it was based on
 22 my paper that Dr. Kobayashi and I published.
 23 **Q So you went to work for a company; you were**
 24 **asked to write a small portion of a system that you**
 25 **created; isn't that right?**

Page 73

1 A That's correct, yes.
 2 **Q And you didn't say anything to Dr. Kobayashi**
 3 **at that time that --**
 4 A I would not question him, sir.
 5 **Q But you realize that he was working on your**
 6 **system; right?**
 7 A That's correct, sir, yes.
 8 **Q And you didn't say anything?**
 9 A No, I would not say anything.
 10 **Q You didn't demand any compensation for that?**
 11 A No.
 12 **Q Did you tell anybody else that this was your**
 13 **idea?**
 14 A No, I did not.
 15 **Q You didn't tell Mr. Ozeki?**
 16 A He kind of know -- kind of knew what I was
 17 working on.
 18 **Q So he knew about the KBSC system?**
 19 A I would not -- I would not say that he knew
 20 intimately about --
 21 **Q You were roommates; right?**
 22 A That's correct.
 23 **Q How long were you roommates?**
 24 A We were roommates for, to the best of my
 25 recollection, two or three years.

19 (Pages 70 to 73)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 74

1 **Q What years?**
2 A I believe starting in -- to the best of my
3 recollection, starting in the fall of '84 until '88.
4 **Q What type of apartment did you have?**
5 A It was a two-bedroom apartment.
6 **Q Where was it?**
7 A Where?
8 **Q Yeah.**
9 A The name of the apartment was called River
10 Bend Apartments in West Columbia.
11 **Q You never showed him your idea for the KBSC**
12 **system?**
13 A I do not recall, sir.
14 **Q He worked at ICC too; right?**
15 A That's correct.
16 **Q He got you the job there; right?**
17 A He's not a person who got me the job there.
18 **Q Who got you the job?**
19 A It was Kobayashi.
20 **Q Did you get him the job there?**
21 A I do not recall.
22 **Q But you never mentioned to Ozeki or anyone**
23 **that the KBSC system that ICC was working on is your**
24 **idea?**
25 A I would not -- I'm not that kind of person who

Page 75

1 would boast what I did.
2 **Q Were you flabbergasted when you found out they**
3 **were working on your system?**
4 A Who was working on my system?
5 **Q ICC.**
6 A Well I would not question that.
7 **Q But yet you questioned it when you found out**
8 **just recently that there was a paper that described**
9 **the KBSC system; right?**
10 A That's correct, without my name on it, that's
11 correct.
12 **Q Right. Well your name was nowhere in the ICC**
13 **literature as the system belonging to you; right?**
14 MR. SU: Objection as to form.
15 A I do not recall that, sir.
16 BY MR. OLIVER:
17 **Q You didn't receive any compensation for**
18 **inventing the system; right?**
19 A No, I did not.
20 **Q You didn't ask for any compensation; right?**
21 A No. At that time I was more concerned about
22 graduation.
23 **Q You didn't leave ICC because of their use of**
24 **your system?**
25 A No.

Page 76

1 MR. OLIVER: Want to take a break?
2 (Short recess).
3 BY MR. OLIVER:
4 **Q Back on the record. Would you turn back to**
5 **Exhibit 502.**
6 A (Witness complies). Okay.
7 **Q On page 0192, which is the first page of**
8 **Exhibit 502, you have a caption, figure 1,**
9 **architecture of KBMS. What is KBMS?**
10 A Knowledge-based management system.
11 **Q It doesn't say silicone compiler there; right?**
12 A No.
13 **Q Why is that?**
14 A Sorry, sorry. Let me take it back. It is not
15 knowledge-based management system. It's
16 knowledge-based module selection.
17 **Q Does figure 1 of this exhibit depict the KBSC**
18 **system?**
19 A Part of it.
20 **Q What part is missing?**
21 A Missing are routing, the netless generator.
22 **Q Had you conceived of those elements that are**
23 **missing at the time that you wrote or created Exhibit**
24 **502, page 192?**
25 A Say that again.

Page 77

1 **Q Had you created those missing elements at the**
2 **time you created page 192?**
3 A To the best of my knowledge, this figure here
4 came first, before a figure of -- sorry. Let me
5 clarify this. To the best of my knowledge, figure 1
6 of page 00192 of Exhibit 502 came first, before the
7 first page of Exhibit 503, which is page 00199.
8 **Q Exhibits 502 through 506 are all hand drawing**
9 **pages authored by you; is that correct?**
10 A That's correct, sir.
11 **Q Had you ever shown any of these pages to**
12 **anyone else?**
13 A The only person I may have shown them is my
14 advisor at that time, Dr. Kobayashi.
15 **Q And what time frame are we talking about?**
16 A We're talking about '84 through '86.
17 **Q All of the pages of Exhibits 502 through 506**
18 **were created in the time frame 1984 through 1986; is**
19 **that correct?**
20 A Let me look at -- you say Exhibits 502
21 through --?
22 **Q 506.**
23 A -- through 506?
24 **Q These are all the hand drawing pages, or**
25 **primarily hand drawing?**

20 (Pages 74 to 77)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 78

1 A What was your question again?
2 Q All of the pages of Exhibits 502 through 506
3 were created during the time frame 1984 through 1986;
4 is that correct?
5 A That's correct.
6 Q How can you be so sure of the time frame?
7 A The reason I can be so sure is because it was
8 during that time that I was a -- was a graduate
9 student of Dr. Kobayashi.
10 Q How do you know none of the pages were created
11 after 1986?
12 A It is possible that some pages may be created
13 in '87
14 Q Not 1988 or after?
15 A No, no.
16 Q Didn't you publish a paper in 1990 directed to
17 cell selection?
18 A That's correct.
19 Q Did you do work in 1990 for cell selection?
20 A No, no.
21 Q How did you come to create a paper in 1990 --
22 A There was a manuscript that has not been
23 published
24 Q Prior to that time?
25 A That's right.

Page 79

1 Q Was it based on work you did with
2 Dr. Kobayashi?
3 A It was somewhat related, but it was not his
4 idea.
5 Q Didn't you attempt to publish a paper with a
6 Dr. Takefuji in which the university required you
7 withdraw that potential publication?
8 A That's correct, sir.
9 Q What was the name of that publication?
10 A I don't recall.
11 Q Do you recall the circumstances of that
12 publication, potential publication?
13 A I don't recall.
14 Q But you do recall that it was withdrawn;
15 right?
16 A That's correct, yes.
17 Q Did it deal with cell selection?
18 A I don't recall.
19 Q Do you know if it dealt with the KBSC system?
20 A I don't recall, either.
21 Q Do you know why it was withdrawn?
22 A I believe it was withdrawn because Takefuji's
23 name was on it, and Kobayashi's was not on it.
24 Q Was that the same paper that you later
25 published in 1990?

Page 80

1 A I don't recall.
2 Q The paper in 1990 dealt with cell selection
3 but did not have Dr. Kobayashi's name; is that
4 correct?
5 A Say that again.
6 Q The paper you published in 1990 dealt with
7 cell selection, but did not --
8 A That's correct.
9 Q -- include as coauthor Dr. Kobayashi; isn't
10 that correct?
11 A That's correct, sir.
12 Q In fact, you don't reference any of his
13 papers; isn't that correct?
14 A I don't recall, since I don't have a copy of
15 that paper.
16 Q Handing you what has been marked as Exhibit
17 507, bearing production numbers FOO 000408 through
18 0420. Is Exhibit 507 the paper that we've been
19 discussing that was published in 1990?
20 A That's correct.
21 (Exhibit No. 507 was identified for the
22 record).
23 BY MR. OLIVER:
24 Q Exhibit 507 has a lot of the same material
25 that appears in the unpublished paper coauthored by

Page 81

1 Dr. Kobayashi, which is marked as Exhibit 510; isn't
2 that correct?
3 A That's correct.
4 Q Why did you leave Dr. Kobayashi off of Exhibit
5 507?
6 A He was not my advisor anymore.
7 Q He did not contribute anything to the work
8 described in 507?
9 A I don't believe so.
10 Q Are you saying he didn't describe -- he did
11 not perform any contribution to Exhibit 510?
12 A To the best of my knowledge, I was the person
13 who wrote that paper.
14 Q He did not provide any ideas?
15 A To the best of my knowledge, no, sir.
16 Q Isn't it possible that he did contribute
17 ideas, you just don't remember?
18 A I do not recall.
19 Q In Exhibit 510 you cited two articles authored
20 by you and Dr. Kobayashi; isn't that right? I will
21 direct you to page 0250 of Exhibit 510.
22 A That's correct.
23 Q Those papers, however, were not referenced in
24 Exhibit 507, the paper that was issued in 1990; isn't
25 that correct?

21 (Pages 78 to 81)

Page 82

1 A That's correct.
 2 Q Why is that?
 3 A It could be -- I do not recall what was the
 4 reason.
 5 Q Is it possible you didn't want to include
 6 Dr. Kobayashi in this paper of 507?
 7 A I do not recall, sir.
 8 Q Would you turn back to Exhibit 502.
 9 A (Witness complies). Okay.
 10 Q What is the term "Saturn" as it's used on page
 11 196 of Exhibit 502?
 12 A Say that question again.
 13 Q What is the term "Saturn" as it appears on
 14 page 196?
 15 A To the best of my knowledge, Saturn was the
 16 name of this parser compiler that I was developing.
 17 Q What is referenced by the term rule 1, rule 2
 18 and rule 3 of page 196?
 19 A Those rules came from the controller. Most
 20 likely it's a traffic controller.
 21 Q Are those expert rules?
 22 A Those are just rules that describe the
 23 behavior of the controller.
 24 Q Are those the expert rules that you have in
 25 your knowledge base?

Page 83

1 A No, sir.
 2 Q What type of rules are they?
 3 A These rules, as on page 00196 of Exhibit 502,
 4 are rules that describe the behavior of the
 5 controller.
 6 Q Those rules do not incorporate expert
 7 knowledge; is that correct?
 8 A That's correct, sir.
 9 Q What is the reference to Neptune on page 198?
 10 A Say that question again.
 11 Q What is the reference to the term "Neptune" on
 12 page 198?
 13 A Neptune is the frame base knowledge base.
 14 Q On the bottom of the page it says, knowledge
 15 base of Neptune. There are four lines of source code.
 16 Do you see that?
 17 A That's correct.
 18 Q What is being performed by that source code?
 19 A Those line of code basically store information
 20 about a particular logic gate.
 21 Q What type of logic gate?
 22 A And I believe this is a and gate -- sorry,
 23 nand gate.
 24 Q Is it a technology-specific gate?
 25 A No, it's not technology specific.

Page 84

1 Q Was the Neptune knowledge base technology
 2 specific?
 3 A No, sir.
 4 Q Was it ever technology specific?
 5 A No, sir.
 6 Q Why is that?
 7 A It is designed to be general enough that it is
 8 technology independent.
 9 Q Is that true of all of your work, your base
 10 work?
 11 A I try to.
 12 Q Is that an advantage?
 13 A Yes.
 14 Q Why?
 15 A So that it can be ported in any environment.
 16 Q How do you meet delay and area constraints if
 17 they're not technology specific?
 18 A Say that question again.
 19 Q How do you meet delay and area constraints for
 20 a user's design if your database is not technology
 21 specific?
 22 A You have to store information according to the
 23 different types of technology.
 24 Q Is that information stored in Neptune?
 25 A You can store information about a particular

Page 85

1 technology, yes.
 2 Q But your work was technology independent?
 3 A That's right.
 4 Q Did you have expert rules in your Neptune?
 5 A I believe so.
 6 Q Were there expert rules anywhere else in your
 7 system?
 8 MR. SU: Objection as to form.
 9 A Could you clarify that question again?
 10 BY MR. OLIVER:
 11 Q In your KBSC system.
 12 A And what's the question again?
 13 Q Whether there were expert rules in your KBSC
 14 system, other than in the Neptune program.
 15 A Let me go back and look at my exhibit here.
 16 Q I believe the KBSC system that you referred to
 17 earlier was on Exhibit 503, page 0199.
 18 A Okay. Okay. Say that question again. I'm
 19 sorry.
 20 Q Is there expert rules in any portion of your
 21 KBSC system, other than the Neptune program?
 22 A Yes, sir.
 23 Q Where is the rules?
 24 A It's in one of the exhibits. It's in the
 25 program.

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 86

1 Q Which exhibit are you referring to?
2 A It's not here. It's in the source code.
3 Q Other than the source code, which we will get
4 to probably after lunch, is there any expert rules in
5 any block depicted on page 0199 of Exhibit 503, other
6 than the Neptune program?
7 A Yes, sir.
8 Q Where are these expert rules?
9 A The expert rules could be in the parser.
10 Q When you say "could be," do you mean they were
11 part of your invention in the parser?
12 A That's correct.
13 Q Okay. Anywhere else?
14 A Again, I have to take a look at the program
15 that I wrote to be more -- to be certain that I did
16 not leave out any of the modules.
17 Q What program did you write?
18 A I wrote a program that was written in C that
19 has the knowledge-based rules.
20 Q Do you know the name of the program?
21 A I don't remember what I called it.
22 Q Did you produce the source code that you're
23 referring to?
24 A Yes, sir.
25 Q I have some source code in a document titled

Page 87

1 "A Knowledge-Based VLSI Module Selector With a
2 Built-in Database Management System." Would that help
3 refresh your recollection?
4 A That's correct.
5 Q (Tendering document). Handing you what has
6 been marked as Exhibit 511, bearing a production
7 numbers FOO 000157 through 0183. Would you just take
8 a moment to look at that and let me know when you're
9 finished.
10 A (Witness complies).
11 (Exhibit No. 511 was identified for the
12 record).
13 A Could you repeat that question?
14 BY MR. OLIVER:
15 Q Other than the parser and the Neptune program,
16 are there any other expert rules in your
17 knowledge-based silicon compiler of figure -- or of
18 page 0199, Exhibit 503?
19 A This Exhibit 511 is only the Neptune. There
20 is still another source code.
21 Q (Tendering document). I've handed you a
22 series of Exhibits 512, 513, 514, 515, 516, 517 and
23 518. They're all source code. If you would take a
24 while to look at that and let me know when you're
25 finished.

Page 88

1 A What's the question again? What were you
2 looking for?
3 Q The question is, what expert rules appear in
4 the KBSC system of Exhibit 503, page 0199, other than
5 the parser and the module selector?
6 (Exhibit Nos. 512 through 518 were identified
7 for the record).
8 MR. OLIVER: Just for the record, Exhibit 512
9 bears production numbers FOO 000264 through 268.
10 Exhibit 513 bears production numbers FOO 0269
11 through 0307. Exhibit 514 bears production numbers
12 FOO 000308 through 3010. Exhibit 515 bears
13 production number FOO 000311. Exhibit 516 bears
14 production numbers FOO 000312 through 319.
15 Exhibit 517 bears production numbers FOO
16 000320 through 0322. Exhibit 518 bears production
17 numbers FOO 000323 through 0407.
18 THE WITNESS: Can you repeat the question?
19 BY MR. OLIVER:
20 Q What expert rules appear in your KBSC system
21 of Exhibit 503, other than in the parser block and the
22 module selection block?
23 A To the best of my knowledge, those are the
24 only -- those are the modules that I work with.
25 Q When you say "that you work with," meaning --

Page 89

1 A I completed.
2 Q When you say "completed," meaning you --
3 A Got the program -- that's exactly right.
4 Q When you sketched the drawing in Exhibit 503,
5 were the parser and module selection modules
6 completed?
7 A To the best of my knowledge, they were in the
8 process.
9 Q Do you know why you sketched the system on
10 this page?
11 A The idea was to develop a knowledge-based
12 silicon compiler.
13 Q But you were already working on the module
14 selection and the parser at the time you sketched this
15 drawing; is that correct?
16 A That's correct, sir.
17 Q Were you already working on the module
18 selection module at the time you created figure 1 of
19 Exhibit 502?
20 A Say that question again, please.
21 Q Were you already working on a module selection
22 block at the time that you created figure 1 of Exhibit
23 502?
24 A I was in the process, sir.
25 Q When did you start creating the module

23 (Pages 86 to 89)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 90

1 selection block?
2 A The idea of the module selection probably came
3 from my master's thesis.
4 Q Did it exist prior to your master's thesis?
5 A No, sir.
6 Q Do you know how long in time it took to create
7 the idea for the module selection after your thesis?
8 A Say that question again, please.
9 Q Do you know how long it took before you
10 created the module selection idea after your master's
11 thesis was completed?
12 A I still don't understand that question, sir.
13 Q How long was it between the time you completed
14 your master's thesis and the time you created the
15 module selection block?
16 A When you say "completed" --?
17 Q When I say created, I don't mean completed, I
18 mean came up with the idea.
19 A I would say my master's thesis identified a
20 need for a cell selection module.
21 Q When did you propose a solution that met that
22 need?
23 A Could you clarify the question again.
24 Q How long in time was it before you created
25 something that would accomplish or meet that need that

Page 91

1 was identified in your master's thesis?
2 A Sorry. I still don't quite understand your
3 question.
4 Q Do you know when you first conceived of the
5 idea for a module selector?
6 A My estimate would be late 1984.
7 Q How can you be sure?
8 A At that time I was completing my master's
9 thesis, and one of the things I learned or found out
10 that there is a need for module selection.
11 Q Did you document your idea for a module
12 selection?
13 A I do not recall.
14 Q Do you have today anything that describes your
15 original work regarding the module selection?
16 A The only --
17 MR. SU: Objection as to form.
18 A The only evidence I have are produced here,
19 sir.
20 BY MR. OLIVER:
21 Q When you say "produced here," are you pointing
22 to a particular exhibit before you?
23 A Exhibit 503, Exhibit 502 and possibly other
24 exhibits, including the source code and --
25 Q I'm sorry.

Page 92

1 A And the papers.
2 Q The papers being the papers coauthored with
3 Dr. Kobayashi?
4 A That's correct, sir.
5 Q Do you know when you began writing code for
6 the module selector?
7 A To the best of my recollection, the code for
8 the module selector was initiated in late 1984.
9 Q Did you conceive of the idea of a
10 knowledge-based silicon compiler after your -- you
11 conceived the idea of a module selector?
12 A I don't recall the order of the -- you know,
13 which comes first; is it top down or bottom up; I just
14 don't recall.
15 Q You did indicate earlier, however, that the
16 sketch of Exhibit 503 was drawn after the module
17 selection program was in progress; isn't that your
18 testimony?
19 A That's correct, sir.
20 Q You said earlier that the master's thesis
21 identified a need for the module selector; right?
22 A I do not recall.
23 Q It is what you said. Do you believe that to
24 be accurate? If you want I could go back and actually
25 read verbatim what you said. I asked you:

Page 93

1 Do you know when you first conceived of the
2 idea for a module selector? You answered: My
3 estimate would be late 1984. I asked: How can you be
4 sure? You said: At that time I was completing my
5 master's thesis, and one of the things I learned or
6 found out that there is a need for module selection.
7 A That's true.
8 Q Was there anything that you were doing that
9 identified a need for a knowledge-based silicon
10 compiler?
11 A Say that question again.
12 Q Is there anything that you were doing, similar
13 to the master's thesis for your module selection, that
14 identified a need for a knowledge-based silicone
15 compiler?
16 A Yes.
17 Q What was that?
18 A The need to capture expertise knowledge.
19 Q For module selection the need was identified
20 in your master's thesis.
21 A To the best of my recollection, yes.
22 Q What identified the need for the
23 knowledge-based silicon compiler?
24 A The need for capturing the knowledge of an
25 expert designer.

24 (Pages 90 to 93)

Page 94

1 **Q** What identified for you the need to capture
2 the knowledge of an expert designer?
3 **A** I don't understand your question. Could you
4 say that again.
5 **Q** For example, when you conceived of the idea
6 for a module selector, you said, the need for such a
7 module selector was identified in your thesis.
8 Similarly, there must have been something like your
9 thesis or something else, some other external
10 information that you received that identified the need
11 for the knowledge-based silicon compiler. Can you
12 identify that source?
13 **A** The --
14 **MR. SU:** Objection as to form.
15 **A** The inspiration for this knowledge-based
16 silicon compiler came from the courses that I took
17 with Professor Bonnell.
18 **BY MR. OLIVER:**
19 **Q** Is there anything else that was an inspiration
20 for the knowledge-based silicon compiler?
21 **A** Not that I know of
22 **Q** Was Dr. Kobayashi an inspiration for the
23 knowledge-based --
24 **A** I don't recall.
25 **Q** Do you doubt that Dr. Kobayashi was the source

Page 95

1 of inspiration for the knowledge-based silicon
2 compiler?
3 **A** Say that question again.
4 **Q** Do you doubt that Dr. Kobayashi was the
5 inspiration for the knowledge-based silicon compiler
6 that you created?
7 **A** Dr. Kobayashi was not an inspiration.
8 **Q** There is no question?
9 **A** There is no question.
10 **Q** You know Dr. Kobayashi and Dr. Bonnell worked
11 together; right?
12 **A** They were in the same department.
13 **Q** They worked together; isn't that correct?
14 **A** I don't recall.
15 **Q** They collaborated on papers; right?
16 **A** It is possible.
17 **Q** You have no idea?
18 **A** I don't recall.
19 **Q** Isn't it possible that the inspiration
20 provided by Dr. Bonnell was actually indirectly
21 provided by Dr. Kobayashi?
22 **A** I don't recall.
23 **MR. SU:** Objection as to form.
24 **MR. OLIVER:** Would you like to take a break
25 for lunch?

Page 96

1 (Lunch recess).
2 **BY MR. OLIVER:**
3 **Q** Back on the record. Referring back to the
4 handwritten drawings of Exhibits 502 through 506.
5 **A** Okay.
6 **Q** Did Dr. Kobayashi provide any contribution
7 whatsoever to any of the pages within Exhibits 502
8 through 506?
9 **A** Yes
10 **Q** What was his contribution?
11 **A** His contribution is editorial.
12 **Q** Can you provide us with an example of what
13 edits he may have made?
14 **A** For example, how the -- the blocks are
15 arranged.
16 **Q** Are you referring to Exhibit 502?
17 **A** That's correct. Referring to figure 1 of
18 Exhibit 502, which is on page 00192.
19 **Q** What was his contribution?
20 **A** Was in the arrangements of blocks.
21 **Q** Cosmetically or technically?
22 **A** Cosmetically.
23 **Q** Anything else?
24 **A** Not that I know of.
25 **Q** Dr. Kobayashi, according to your testimony,

Page 97

1 was not the source of any ideas conveyed in your
2 Exhibits 502 through 506; is that correct?
3 **A** I don't recall.
4 **Q** Is it possible that he provided you with any
5 of the ideas described in 502 through 506?
6 **A** To the best of my knowledge, this is my
7 original work, and his contribution was editorial.
8 **Q** You indicated that after your master's thesis
9 you were writing or headed towards a dissertation on
10 cell selection; is that correct?
11 **A** That's correct.
12 **Q** Why didn't you attempt to write a dissertation
13 on your knowledge-based silicon compiler?
14 **A** Because at that time I think the biggest need
15 is a cell selection.
16 **Q** Wasn't the cell selection that you developed
17 part of the KBSC system?
18 **A** It was meant to be, that's correct.
19 **Q** How could there be a need for the cell
20 selection if there was no KBSC system to begin with?
21 **A** The -- according to the best of my knowledge,
22 the KBSC and the cell selection have a lot of things
23 in common, which is the knowledge base.
24 **Q** The knowledge base was part of your master's
25 thesis; is that correct?

25 (Pages 94 to 97)

Page 98

1 A That's incorrect.
 2 **Q Why didn't you write a dissertation on the**
 3 **knowledge base?**
 4 A The knowledge base alone would not be
 5 sufficient.
 6 **Q Why is that?**
 7 A You got to have something to -- you may have a
 8 theory. You've got to have some application to prove
 9 your theory.
 10 **Q Wouldn't application of the knowledge base to**
 11 **VLSI design be sufficient?**
 12 MR. SU: Objection to form.
 13 A The VLSI design is pretty general. You have
 14 to be a little bit more specific.
 15 BY MR. OLIVER:
 16 **Q How is the cell selector applied to VLSI**
 17 **design?**
 18 A The cell selection is part of the VLSI
 19 process.
 20 **Q Wouldn't the knowledge base be part of that**
 21 **same process?**
 22 A The knowledge base is just one avenue to
 23 accomplish that cell selection.
 24 **Q Are you saying that your topic of cell**
 25 **selection was not utilizing a knowledge base?**

Page 99

1 A Say that again.
 2 **Q That your topic of cell selection was not**
 3 **utilizing a knowledge base?**
 4 A The topic of cell selection?
 5 **Q For your dissertation?**
 6 A That's incorrect. That's not true.
 7 **Q You indicated earlier that the topic of VLSI**
 8 **design was too broad for you to sufficiently craft a**
 9 **dissertation topic based on a knowledge base; isn't**
 10 **that correct?**
 11 A That's not correct. That's not what I said.
 12 **Q What did you say?**
 13 A I said the topic of just VLSI design using
 14 knowledge-based systems is too broad of a title of a
 15 topic to begin with.
 16 **Q Why, when nobody had done it before?**
 17 A According to my -- to the best of my
 18 knowledge, to have a Ph.D. dissertation, you have to
 19 be very specific. It has to be non -- it cannot be of
 20 a broad nature.
 21 **Q Well how is having a cell selection in VLSI**
 22 **design narrower?**
 23 A That would be a specific task.
 24 **Q Why? What's the difference?**
 25 A Because you're talking about a very specific

Page 100

1 task of the VLSI design process.
 2 **Q Having a knowledge base to select cells,**
 3 **wouldn't that be a narrow task?**
 4 A Yes.
 5 **Q Why didn't you do a dissertation on having a**
 6 **knowledge base to select cells?**
 7 A Yes. As a matter of fact, that was my
 8 original goal was to have a knowledge-based, you know,
 9 system for cell selection.
 10 **Q Did you have any evidence that that was your**
 11 **original dissertation?**
 12 A I don't have, other than the papers that I
 13 wrote.
 14 **Q What papers did you write?**
 15 A Exhibit 510, Exhibit 509, Exhibit 508 and my
 16 handwritten notes.
 17 **Q Do any of these exhibits, which include**
 18 **Exhibits 502 through 506 for the handwritten notes,**
 19 **and publications 508 through 510, mention your**
 20 **potential dissertation?**
 21 A The word "dissertation" is not on the notes.
 22 **Q Did you tell anyone, other than Dr. Kobayashi,**
 23 **that it was your intent to have a dissertation**
 24 **involving cell selection?**
 25 A I do not recall.

Page 101

1 **Q Exhibit 510 was not published; is that**
 2 **correct?**
 3 A That's correct.
 4 **Q Why wasn't it published?**
 5 A We, Dr. Kobayashi and I, we were in the
 6 process of submitting this manuscript for publication
 7 when we parted ways.
 8 **Q What year was Exhibit 510 created?**
 9 A To the best of my recollection, this is --
 10 manuscript is written in -- initially in '85, '86, and
 11 it became a polished form in early '87.
 12 **Q What contribution, if any, did Dr. Kobayashi**
 13 **make to Exhibit 510?**
 14 A Editorial.
 15 **Q Would you turn to page 254 of Exhibit 510.**
 16 A (Examining document). Okay.
 17 **Q What are the terms "74193" at the top?**
 18 A Say that again. What's your question?
 19 **Q The term "74193," or the number "74193" is**
 20 **represented at the top as an instant selected. Do you**
 21 **see that?**
 22 A Okay.
 23 **Q What is represented by that number?**
 24 A That is a cell.
 25 **Q What is that cell?**

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 102

1 A It's an integrated circuit.
2 **Q Is it an integrated circuit produced by Texas**
3 **Instruments?**
4 A Possibly.
5 **Q You don't know?**
6 A That number, 741 series is typically is a
7 digital component.
8 **Q What is represented by the number 74173 in the**
9 **next block down?**
10 A Say that again.
11 **Q What is represented by the number 74173 in the**
12 **next block down on page 254?**
13 A It is a different component. It's a different
14 IC component.
15 **Q When you say "IC," you mean chip?**
16 A That's correct.
17 **Q Integrated circuit?**
18 A That's correct.
19 **Q What is represented by the collection of these**
20 **instances which appear as figure 4 on page 254?**
21 A This would be a list of integrated circuit
22 blocks that have been selected by my program, Neptune,
23 to implement a particular function.
24 **Q The output of Neptune would therefore be an**
25 **identification of these 74 series integrated circuit**

Page 103

1 parts?
2 A That's correct, sir.
3 **Q Would the output of figure 4 on that page be**
4 **representative of the type of output of Neptune at the**
5 **time that you and Dr. Kobayashi parted ways?**
6 A Say that again.
7 **Q Would the output of figure 4 be representative**
8 **of the type of output of your program Neptune at the**
9 **time that you and Dr. Kobayashi parted ways?**
10 A That's correct.
11 **Q The source code, which I believe we've labeled**
12 **Exhibits 513 through 518, were produced by printing**
13 **out files from your computer at the Florida State**
14 **University; is that correct?**
15 A That's correct, sir.
16 **Q Do you know the revision date on your computer**
17 **for these files, Exhibits 513 through 518?**
18 A I do not recall what the revision date is.
19 **Q Would the revision date be the date in which**
20 **you loaded them on your computer?**
21 A No.
22 **Q What date would they be?**
23 A The revision date would be the date that I
24 make changes to the program.
25 **Q Did you create those programs on your computer**

Page 104

1 **in Florida State University?**
2 A No, sir.
3 **Q How would the revision date maintain the**
4 **oldest revision from some other computer?**
5 A Whenever you rename -- copy files, you
6 download files from one computer to another, depending
7 on the system, they will automatically change the date
8 on your file -- on your electronic file.
9 **Q Was the revision date -- strike that. Are you**
10 **saying that whenever you copy the file from one**
11 **computer onto another, the revision date would change?**
12 A Possibly, yes.
13 **Q Did that revision date change for Exhibits 513**
14 **through 518?**
15 A Possibly.
16 **Q You don't know for sure?**
17 A I don't know for sure.
18 MR. SU: Just for the record, Exhibit 518
19 contains pages that don't look like code to me. So
20 I just want to make sure the record is clear as to
21 whether the witness is saying that all of this came
22 from the printout or not.
23 BY MR. OLIVER:
24 **Q Would you please take a look at Exhibit 518.**
25 A Okay.

Page 105

1 **Q Did all of the pages making up Exhibit 518**
2 **come from your computer at Florida State University?**
3 A No, sir.
4 **Q Are you able to identify the portions of**
5 **Exhibit 518 that came from your computer at Florida**
6 **State University?**
7 A No, sir.
8 **Q Did any pages of Exhibit 518 come from your**
9 **computer?**
10 A Say that again
11 **Q Did any pages of Exhibit 518 come from your**
12 **computer?**
13 A When you say "come from my computer," where?
14 **Q At Florida State University.**
15 A You mean what's created; do you mean it was
16 created --
17 **Q Produced by printing out from your computer**
18 **the way in which Exhibits 513 through 517 were**
19 **produced.**
20 A Okay. These pages were printed out at Florida
21 State University, that's correct.
22 **Q When you say "these pages," which pages?**
23 A Pages on Exhibit 518, pages 000323 through
24 00338.
25 **Q Any other pages?**

27 (Pages 102 to 105)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 106

1 A Not in this Exhibit 518.
2 Q Where did the remaining pages of Exhibit 518,
3 which are pages 0339 through 0407, come from?
4 A Say that again.
5 Q Where did the remaining pages of Exhibit 518,
6 which are pages 0339 through 0407, come from?
7 A Say that again. I'm sorry.
8 Q Pages 0339 through 0407.
9 A Okay.
10 Q Exhibit 518, where did those pages come from?
11 A These pages, part of them came from my
12 master's thesis defense slides, and part of it came
13 from my own personal notes
14 Q Handing you what has been previously marked as
15 Exhibit 39. Would you take a moment to review Exhibit
16 39 and let me know when you've finished?
17 A (Witness complies). Okay.
18 Q Do you recognize Exhibit 39?
19 A Yes, sir.
20 Q When did you first see Exhibit 39?
21 A I first came across this document, which was
22 e-mailed to me by one of the attorneys at Shapiro,
23 Weinstein.
24 Q Do you remember the date?
25 A I do not know the exact date, but I -- to the

Page 107

1 best of my recollection, I believe it's in 2002.
2 Q Did you review it at that time?
3 A Yes, sir.
4 Q Did you have a subsequent conversation with
5 Mr. Weinstein?
6 A Yes, sir.
7 Q Do you recall what you discussed?
8 A I told him that I was very disappointed.
9 Q Why were you disappointed?
10 A Because when I look at his patent, I realize
11 that my former advisor had not -- had purposely left
12 out my name on this patent.
13 Q You weren't disappointed, however, when you
14 were working for him at ICC, and he was working on the
15 very same system that was patented; right?
16 A That's correct.
17 Q Why weren't you disappointed then?
18 A I was not aware that he was going to seek a
19 patent on this.
20 Q But you were aware that he was commercializing
21 it, the idea; right?
22 A I was taking orders from him.
23 Q Well why are you not disappointed when he was
24 going to make money from selling the product that you
25 invented, but yet you were disappointed when you see

Page 108

1 that he was awarded a patent?
2 A At that time I was his Ph.D. student, and I
3 did not want to risk not being able to graduate.
4 Q Subsequently you changed advisors, and you
5 were no longer his student. Were you then
6 disappointed in him for trying to commercialize his
7 product?
8 A I am not aware of any -- anything that
9 transpired after I switch advisors.
10 Q But you knew all along that he was continuing
11 to work on the KBSC system; right?
12 A I don't recall.
13 Q Would you turn to column 16 of Exhibit 39.
14 A Column 16.
15 Q By the way, do you have any patents in your
16 own name?
17 A Excuse me?
18 Q Do you have any patents in your own name?
19 A No, sir.
20 Q Did you ever apply for any patents?
21 A No, sir.
22 Q Why is that?
23 A I guess I don't have the knowledge to apply
24 for a patent.
25 Q Column 16.

Page 109

1 A Okay.
2 Q Have you reviewed claim 13, which appears
3 around line 34 of column 16, particularly lines 34
4 through 65?
5 A (Examining document). Okay.
6 Q My questions I will be referring to different
7 claim elements. Do you understand the term "claim
8 elements"?
9 A I'm not sure.
10 Q For our purposes there will be a reference to
11 claim elements, and there are six different claim
12 elements in claim 13. The claim elements are:
13 Storing a set of definitions, which appears on line
14 37; storing data describing a set of available
15 integrated circuit hardware cells, which starts on
16 line 39; storing in an expert system knowledge base,
17 which appears at line 42; describing for a proposed
18 application-specific integrated circuit, which appears
19 at line 45; specifying for each described action and
20 condition, which appears at line 48; and selecting
21 from said stored data for each of those specified
22 definitions, which begins at line 52.
23 Do you see all those claim elements?
24 A Yes, sir.
25 Q Which one or more of these claim elements do

28 (Pages 106 to 109)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 110

1 you believe you invented?
2 A May I mark it?
3 Q Yes, please do. Did you finish?
4 A Yes.
5 Q May I take a look?
6 A (Tendering document).
7 Q Just for the record, and please correct me if
8 I'm wrong, you identified on Exhibit 39 in response to
9 my question, the elements starting on line 39 of
10 column 16: Storing data describing a set of
11 integrated hardware cells; the element starting at
12 line 42, storing in an expert system knowledge base,
13 and the element starting at line 52, selecting from
14 said stored data; is that correct?
15 A That's correct, sir.
16 Q Are there any other elements of claim 13 that
17 you believe you invented?
18 A I don't recall.
19 Q Would you take a moment to look at all of the
20 claims of this patent, which are claims one to 20, and
21 let me know if there are any other elements that you
22 believe you invented?
23 A May I mark on it?
24 Q Yes, please.
25 A (Examining document). Okay. It's completed.

Page 111

1 Q Can I take a look?
2 A Okay (tendering document).
3 Q Starting with claim one, you have a mark at
4 the beginning, which is known as the preamble. Is
5 there an indication that you --
6 A I guess I'm not clear if everything under
7 claim one belongs to one, or do I need to separate
8 them?
9 Q Just for the purposes of our question, when I
10 refer to "claim elements," it will be any type of --
11 A Oh, okay.
12 Q -- indention or paragraph that has this type
13 of indention.
14 A Okay. I see
15 Q For example, claim one at line 36 is one
16 element, and line 39 is another element.
17 A Okay.
18 Q And the same fashion as we did for claim 15.
19 A Okay. Let me correct that.
20 Q That's the same for all the claims.
21 A Okay. Maybe I use a different pen.
22 Q This is your pen here.
23 A Okay.
24 Q May I take a look?
25 A Yeah. The ones that I bubbled are the ones

Page 112

1 that I picked, the ones crossed out I crossed out.
2 Q (Examining document). I will read into the
3 record, and you can confirm it.
4 A Okay.
5 Q You indicated for claim one, which starts on
6 column 14, line 32, you indicated the element, a cell
7 library, starting at line 47?
8 A That's correct, sir.
9 Q And at line 50, the cell selection means; is
10 that correct?
11 A That's correct.
12 Q Did you not identify anything in claims two,
13 three, four or five; is that correct?
14 A To the best of my knowledge, that's correct,
15 sir.
16 Q In claim six, I assume you indicated the
17 entire clause in claim six and claim seven; is that
18 correct?
19 A That's correct, sir.
20 Q You did not indicate anything in claim eight.
21 In claim nine you also identified the cell library,
22 which begins approximately line 46 of column 15.
23 A Yes, sir.
24 Q And the cell selection meanings, which appears
25 to start at line 48 of count 15; is that correct?

Page 113

1 A That's correct.
2 Q Column 16, you did not indicate anything for
3 claim ten; is that correct?
4 A That's correct.
5 Q For claim 11 you indicated also the cell
6 library, which appears to begin at line 18, and the
7 knowledge base, which appears to begin at line 21; is
8 that correct?
9 A That's correct.
10 Q You did not indicate anything for claim 12; is
11 that correct?
12 A That's correct.
13 Q We discussed claim 13. Claims 14, 15, 16 and
14 17 you did not indicate anything; is that correct?
15 A Say that again.
16 Q Claims 14, 15, 16 and 17 you did not indicate
17 anything; is that correct?
18 A To the best of my knowledge, that's correct.
19 Q For claim 18 you identified the storing in a
20 cell library element, which appears to begin at line
21 16, and the storing in a knowledge base element, which
22 begins to -- which appears to begin at page 19 -- line
23 19; is that correct?
24 A That's correct, sir.
25 Q You did not indicate anything for claims 19

29 (Pages 110 to 113)

Page 114

1 and 20; is that correct?

2 A That's correct, sir.

3 Q Did you invent the claim elements that you

4 identified in claim 13, which, again, are the storing

5 data describing a set of available integrated circuit

6 hardware cells beginning at line 39; the storing in an

7 expert system knowledge base, which begins at line 42,

8 and the selecting from said stored data, which begins

9 at line 52 of column 16, all at the same time?

10 MR. SU: Objection as to form.

11 A I do not recall if it's all done at the same

12 time.

13 BY MR. OLIVER:

14 Q Do you know when you invented the storing data

15 describing a set of available integrated circuit

16 hardware cells element, which begins at line 39?

17 A To the best of my knowledge, it would be in

18 1984 through '86.

19 Q When you say "through," what do you mean?

20 A The time period between 1984 and 1986.

21 Q Did you invent them during that entire period,

22 or did you mean that you invented them at some point

23 between '84 through '86?

24 A At some point between '84 and '86, sir.

25 Q Do you know if you invented -- strike that.

Page 115

1 Is it possible that you invented the element that

2 began at line 39 somewhere within 1986?

3 A I do not recall, sir.

4 Q Is it possible that you invented it towards

5 the end of 1986?

6 A I do not recall.

7 Q Do you recall when you invented the element

8 that begins at line 42 or the element that begins at

9 line 52?

10 A What's your question again?

11 Q Whether you recall the date in which you

12 invented either the element that begins at line 42 or

13 the element that begins at line 52?

14 A Say that question begin.

15 Q Do you recall when you invented the element

16 that begins at line 42?

17 A To the best of my knowledge, those were

18 invented during the period of between 1984 and 1986.

19 Q Is that the same time period in which you

20 invented the element of selecting from said stored

21 data, which begins at line 52 of column 16?

22 A Say that again.

23 Q Did you invent the element that begins at line

24 52 in the time period 1984 through 1986?

25 A That's correct. Let me clarify this. The

Page 116

1 three items under line item number 13 were --

2 Q You mean claim 13?

3 A Yeah, claim 13.

4 Q Yes.

5 A -- were invented during the period between

6 1984 and 1986

7 Q At some point --

8 A At some point, that's correct.

9 Q -- between '84 and '86?

10 A Yes. Although I cannot pinpoint a specific

11 date

12 Q Do you have any evidence of this invention of

13 any of the elements that you identified in claim 13,

14 which are the ones that begin at lines 39, 42 and 52?

15 A Yes, sir.

16 Q What is your evidence?

17 A The evidence is my hand notes and the computer

18 programs and the papers that I wrote.

19 Q Just to be clear for the record, the evidence

20 of invention is the handwritten notes which we have

21 marked as Exhibits 502 through 506?

22 A That's correct.

23 Q The computer programs identified as Exhibits

24 511 through 518, and which publications?

25 A The publications, Exhibit 508 and Exhibit 509.

Page 117

1 Q Any other publications?

2 A And Exhibit 510, the unpublished manuscript.

3 Q Any other publications?

4 A Exhibit 507.

5 Q Any other publications?

6 A To the best of my recollection, that was all.

7 Q For all of the other elements you identified

8 in claims one through 12, if any, and 14 through 20 of

9 the 432 patent, which is Exhibit 39, is the evidence

10 of your invention found in those same exhibits which

11 are 502 through 506, 511 through 518, 507 through 510?

12 A Say that question again, please.

13 Q For all the other elements that you identified

14 on Exhibit 39 for claims one through 12 and claims 14

15 through 20, are you relying on the same evidence of

16 invention as you did for claims -- for the claim

17 elements of claim 13?

18 A Say that again. Sorry.

19 Q Are you relying for proof of your invention of

20 the claim elements you identified in the 432 patent

21 with respect to claims one through 12 and 14 through

22 20, if any?

23 A Are those the ones that I did not mark?

24 Q You identified several elements on Exhibit 39

25 within certain claims, one, six, seven, nine, 11 and

30 (Pages 114 to 117)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 118

1 18; is that correct?
2 A Sorry. I still don't quite understand your
3 question.
4 Q As we confirmed, you had marked in Exhibit 39
5 certain claim elements that you believe you invented
6 with respect to claims one, six, seven, nine, 11 and
7 18; is that correct?
8 A I still don't understand that question.
9 Q The question is simply, did you identify claim
10 elements --
11 A Could we do one at a time instead of, you
12 know, a range of numbers?
13 Q Well, sure. Did you identify elements in
14 claim one?
15 A Yes, sir.
16 Q Did you identify elements in claim six?
17 A Yes, sir.
18 Q Did you identify elements in claim seven?
19 A Yes, sir.
20 Q Did you identify elements in claim nine?
21 A Yes, sir.
22 Q Did you identify elements in claim 11?
23 A Yes, sir.
24 Q Did you identify elements in claim 18?
25 A Yes, sir.

Page 119

1 Q Other than claim 13, you did not identify any
2 other -- I'm sorry, strike that.
3 Did you identify elements in any other claim
4 that I did not -- strike that. You did not identify
5 anything in claim two; is that correct?
6 A That's correct.
7 Q You did not identify anything in claim three;
8 is that correct?
9 A That's correct.
10 Q You did not identify anything in claim four;
11 is that correct?
12 A That's correct.
13 Q You did not identify anything in claim five;
14 is that correct?
15 A That's correct.
16 Q You did not identify anything in claim eight;
17 is that correct?
18 A That's correct.
19 Q You did not identify anything in claim ten; is
20 that correct?
21 A That's correct.
22 Q You did not identify anything in claim 12; is
23 that correct?
24 A That's correct.
25 Q You did not identify anything in claim 14; is

Page 120

1 that correct?
2 A That's correct.
3 Q You did not identify anything in claim 15; is
4 that correct?
5 A That's correct.
6 Q You did not identify anything in claim 16; is
7 that correct?
8 A That's correct.
9 Q You did not identify anything in claim 17; is
10 that correct?
11 A That's correct.
12 Q You did not identify anything in claim 19; is
13 that correct?
14 A That's correct.
15 Q You did not identify anything in claim 20; is
16 that correct?
17 A That's correct. And I would like to add that
18 I did not identify them based on the best of my
19 knowledge.
20 Q For the claim elements that you did identify
21 other than those in claim 13, are you relying on the
22 evidence of invention that you've relied on for the
23 claim elements of claim 13?
24 A Say that again.
25 Q For the elements that you identified in all

Page 121

1 the claims, other than claim 13, are you relying on
2 the same evidence of invention as you are relying on
3 for the claim elements you identified in claim 13?
4 A That's correct.
5 Q Do you want to take a break?
6 A Yeah, yeah.
7 (Short recess).
8 THE WITNESS: I would like to make two
9 clarifications. One, the first clarification is
10 that I was not aware of the pending patent in the
11 works while I was working under Kobayashi, and I
12 was not aware of the patent even after I quit
13 working with Dr. Kobayashi.
14 The second clarification is, during the break
15 I was recollecting my thoughts, and I realized that
16 I had done other contributions too besides the one
17 that I specified that I mark on this document. And
18 if I may, I would like to go back and look at my
19 handwritten notes and identify them.
20 BY MR. OLIVER:
21 Q Of course. Just to be clear, you're going to
22 identify them in the handwritten notes or in the
23 patent?
24 A Well I didn't find them in the patent.
25 Q By looking at your notes; right?

31 (Pages 118 to 121)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 122

1 A That's correct.
2 Q Please do so.
3 A Thank you.
4 Q While you're doing that, I want to mark as
5 Exhibit 519 the marked-up copy of Exhibit 39, which is
6 the 432 patent, just so there is a record of your
7 annotations.
8 (Exhibit No. 519 was identified for the
9 record).
10 THE WITNESS: You don't mind if I take a call?
11 It could be an urgent call.
12 MR. OLIVER: Sure.
13 (Discussion off the record).
14 A Mr. Oliver, I believe there are some more
15 evidence that I have produced that were not shown
16 here, other exhibits, I believe.
17 BY MR. OLIVER:
18 Q What --
19 A Hand -- hand-sketched documents.
20 Q Do you know what was on the hand-sketched
21 diagram?
22 A Let me see.
23 Q I have something here which is some kind of a
24 draft of an article that also has some attached --
25 A That's correct. That's the one I was looking

Page 123

1 for.
2 Q I apologize. I didn't realize this was a
3 hand-drawn attachment. I will mark that as Exhibit
4 520.
5 (Exhibit No. 520 was identified for the
6 record).
7 Q Exhibit 520 bears production numbers FOO 00184
8 through 0188.
9 A (Examining document). Okay. I'm finished,
10 sir.
11 Q May I take a look?
12 A Yes (tendering document). The ones that I
13 have bubbled and put a checkmark next to it or
14 underneath it is the one that I have just added.
15 Q For the record, it appears that you've
16 identified all of the elements of claim one; is that
17 correct?
18 A May I see it? Say the question again.
19 Q You now appear to have identified all the
20 claim elements of claim one; is that correct?
21 A That's correct, sir.
22 Q That's quite a change from your earlier
23 testimony; isn't it?
24 A That's correct.
25 Q Why did you make that change?

Page 124

1 A On the recollection, when I was answering your
2 question earlier, I forgot that I have the additional
3 notes that were just produced to me.
4 Q Exhibit 520?
5 A That's correct, sir.
6 Q What in Exhibit 520 informed you that you also
7 invented these other elements that you identified?
8 A Exhibit 520, along with my handwritten notes
9 from other exhibits, made me realize that I have done
10 more than I put down earlier.
11 Q So essentially you invented everything in this
12 claim; is that correct?
13 A I would not say everything.
14 Q What did you not invent in claim one?
15 A Say that again.
16 Q Essentially you invented everything in claim
17 one; isn't that correct?
18 A That's correct, yes.
19 Q Did you invent everything in claim 13?
20 A That's correct.
21 Q Although you didn't identify everything in
22 claim 13?
23 A Wait a minute. Wait a minute. I would like
24 to make a correction right here. The first one I
25 would like to make a claim on that, too, so

Page 125

1 essentially will be all of --
2 Q So you now claim to have invented everything
3 in this claim 13?
4 A That's correct, sir.
5 Q And you never told anybody about your
6 invention; is that right?
7 A That's correct.
8 Q You didn't tell anyone?
9 A The only person who might know about it would
10 be my advisor at that time.
11 Q And how did you tell him?
12 A I gave him the example figure 1 of Exhibit
13 542.
14 Q You gave that to him?
15 A That's correct, sir.
16 Q Did you give all of your sketches, which are
17 Exhibits 502 through 506 and Exhibit 520?
18 A I don't recall.
19 Q Do you know for sure you gave Exhibit 502?
20 A I know, to the best of my recollection, I gave
21 figure 1 of Exhibit 502 to Dr. Kobayashi.
22 Q Did you give the figure page 199 of Exhibit
23 503 to Dr. Kobayashi?
24 A I don't recall, but I do recall discussing a
25 lot of my ideas with him.

32 (Pages 122 to 125)

Page 126

1 **Q Do you recall discussing all of the elements**
 2 **depicted in Exhibit 503?**
 3 A Very likely.
 4 **Q Likely or for certain?**
 5 A Very likely. I do not recall all the details.
 6 **Q What evidence do you have to show that you**
 7 **actually discussed those elements with him?**
 8 A Say that question again.
 9 **Q What evidence do you have to show that you**
 10 **actually discussed the elements of Exhibit 503 with**
 11 **Dr. Kobayashi?**
 12 A The only thing I can think of is the revisions
 13 to this sketch
 14 **Q What revisions are you talking about?**
 15 A I'm talking about the scratches, for example,
 16 on page 000199 on Exhibit 503.
 17 **Q Yes.**
 18 A You can see that I have scratched out some of
 19 the -- for example, the control flow graph.
 20 **Q Yes.**
 21 A That typically comes from my discussions with
 22 my advisor.
 23 **Q Is that his handwriting?**
 24 A No. No, sir
 25 **Q Is that your handwriting?**

Page 127

1 A That's my handwriting.
 2 **Q Is that your hand scratching out of the**
 3 **control flow graph?**
 4 A That's my handwriting. That's right.
 5 **Q Why is the control flow graph scratched out on**
 6 **Exhibit 503?**
 7 A It was just based on my idea at that time.
 8 **Q How does that relate to your conversation with**
 9 **Dr. Kobayashi?**
 10 A Again, I do not recall the exact conversation.
 11 **Q And you're not certain whether or not you**
 12 **actually disclosed Exhibit 503 to Dr. Kobayashi; is**
 13 **that correct?**
 14 A Say that again.
 15 **Q You're not certain that you actually disclosed**
 16 **Exhibit 503 to Dr. Kobayashi; is that correct?**
 17 A It is highly probable that I have shown him
 18 and discussed with him.
 19 **Q You cannot be positively certain, however; is**
 20 **that correct?**
 21 A That's correct.
 22 **Q You can be certain, however, that you showed**
 23 **him Exhibit 502, page 0192; is that correct?**
 24 A To the best of my knowledge, yes.
 25 **Q Are there any other hand drawings or pages**

Page 128

1 **within these Exhibits, 502 through 506, that you can**
 2 **say with certainty that you showed Dr. Kobayashi?**
 3 A (Examining document). I would say Exhibit
 4 503, page 000200, Exhibit 504, page 000204, and under
 5 the same exhibit, page 000205, 206, 207, 208, 209, and
 6 that's it. And Exhibit 506, page 000256, 257, 258 and
 7 259 through 263, which is basically the entire
 8 exhibit; Exhibit 502, page 000192, 193, 194, 196, 197
 9 and 198; Exhibit 514, the entire exhibit of 514;
 10 Exhibit 515.
 11 **Q The entire exhibit?**
 12 A That's right. That's only one page, 515. And
 13 I believe that's all the exhibits.
 14 **Q All the other pages that you did not identify**
 15 **you cannot be certain whether or not you disclosed**
 16 **them to Dr. Kobayashi; is that correct?**
 17 A That's correct.
 18 **Q For the pages and exhibits that you did**
 19 **identify, how can you be so certain that you did**
 20 **disclose them to Dr. Kobayashi?**
 21 A I usually shared with him my ideas to get some
 22 feedback.
 23 **Q How do you know for certain that the**
 24 **individual pages that you identified were pages that**
 25 **you showed to Dr. Kobayashi?**

Page 129

1 A Based on the papers that were published.
 2 **Q Why is that?**
 3 A The reason is, some of the papers that were
 4 published have some schematics and ideas that came
 5 from the notes.
 6 **Q When you say you showed Dr. Kobayashi these**
 7 **hand drawing pages that you identified, were they**
 8 **first showed to Dr. Kobayashi in a draft of some**
 9 **papers?**
 10 A I do not recall.
 11 **Q Is there any other reason why you can be so**
 12 **certain that you showed Dr. Kobayashi any of your**
 13 **pages or papers that you identified?**
 14 A It's based on the corrections on the
 15 handwritten notes.
 16 **Q And those corrections were your own**
 17 **corrections; is that correct?**
 18 A That's correct, sir.
 19 **Q You would not have made those corrections**
 20 **without discussing it with Dr. Kobayashi; is that your**
 21 **testimony?**
 22 A Say that again.
 23 **Q You would not have made those corrections**
 24 **without talking to Dr. Kobayashi; is that your**
 25 **testimony?**

Page 130

1 A That's not true.
 2 Q You could have made those corrections without
 3 Dr. Kobayashi's input; is that correct?
 4 A Possibly.
 5 Q So the mere fact that there were corrections
 6 on those handwritten drawings does not mean that you
 7 showed those handwritten drawings to Dr. Kobayashi;
 8 isn't that right?
 9 A Say that again.
 10 Q The mere fact that there are corrections on
 11 those handwritten drawings does not mean that you
 12 showed those handwritten drawings to Dr. Kobayashi?
 13 A I believe that the ones that I told you I
 14 showed to him to get his feedback.
 15 Q And do you believe so based on the corrections
 16 that were made?
 17 A More than the corrections and also the papers
 18 that were published.
 19 Q Is there anything else that gives you that
 20 indication?
 21 A That would be all.
 22 Q Do you know when you showed them to
 23 Dr. Kobayashi?
 24 A Between the time frame of 1984 and '86.
 25 Q Is it possible that Dr. Kobayashi was

Page 131

1 simultaneously working on the work that was ultimately
 2 patented in Exhibit 519?
 3 A Say that again.
 4 Q Is it possible that Dr. Kobayashi was
 5 independently, but yet simultaneously, working on a
 6 knowledge-based system at the same time that you were
 7 working on a knowledge-based system?
 8 A You mean him working by himself?
 9 Q Yes.
 10 A Not possible.
 11 Q Why is that?
 12 A The reason is, VLSI is not his background.
 13 Q Was VLSI your background?
 14 A That was my background.
 15 Q Were you an expert at the time?
 16 MR. SU: Objection to form.
 17 A I considered myself an expert in VLSI.
 18 BY MR. OLIVER:
 19 Q How many years of experience did you have in
 20 VLSI at the time?
 21 A I first learned of the subject matter, to the
 22 best of my recollection, would be in late 1983 or
 23 early 1984.
 24 Q So in less than one year, which is the time
 25 frame in which you say you may have invented the KBSC

Page 132

1 system, you became an expert, and you invented the
 2 rule-based VLSI design system; is that correct?
 3 A That's correct.
 4 Q And you never patented it; is that correct?
 5 A That's correct.
 6 Q You never documented it, other than hand
 7 sketches; is that correct?
 8 A That's correct.
 9 Q You never disclosed it to anyone other than
 10 Dr. Kobayashi?
 11 A That's correct.
 12 Q Before the time you started working for
 13 Howrey, you never mentioned it; is that correct?
 14 A Say that again.
 15 Q Up until the time you started working for
 16 Howrey in 2006, you never mentioned your invention to
 17 anyone; is that correct?
 18 A I still don't understand that question.
 19 Q It's only now that you're being paid by Howrey
 20 as a consultant that you are telling people that you
 21 invented the KBSC system; isn't that correct?
 22 MR. SU: Objection, argumentative.
 23 A I don't recall.
 24 BY MR. OLIVER:
 25 Q You testified that you didn't keep a lab

Page 133

1 notebook; is that correct?
 2 A Could you clarify what a lab notebook --
 3 Q I believe I asked you that before, and you
 4 said you did not.
 5 A That's correct.
 6 Q You didn't keep a journal; is that correct?
 7 A What do you mean by "journal"?
 8 Q A diary?
 9 A No, sir.
 10 Q Did you have any other inventions besides the
 11 KBSC system?
 12 MR. SU: Objection as to form.
 13 A I don't recall, sir.
 14 BY MR. OLIVER:
 15 Q During the period 1984 through 1986 when you
 16 invented the KBSC system, did you utilize University
 17 of South Carolina resources?
 18 A Could you explain what these resources are?
 19 Q Did you do the work at the university?
 20 A Would you elaborate some more what
 21 resources --
 22 Q When you conceived your KBSC system, did you
 23 do so utilizing any resources or materials or
 24 facilities of the University of South Carolina?
 25 A Yes, I did.

34 (Pages 130 to 133)

Page 134

1 Q What did you utilize?
 2 A The computers.
 3 Q Anything else?
 4 A Possibly the paper.
 5 Q You never reduced to practice this KBSC
 6 system; isn't that correct?
 7 MR. SU: Objection as to form.
 8 A Would you explain what you mean?
 9 BY MR. OLIVER:
 10 Q You never created a working prototype of the
 11 KBSC system; isn't that correct?
 12 A Could you explain what you mean by "working
 13 prototype."
 14 Q You've never heard of the term "working
 15 prototype"?
 16 A Okay. Working to what extent?
 17 Q What is your definition of "prototype"?
 18 A Prototype means it works to some extent but
 19 still may have bugs in it.
 20 Q Using that definition, did you ever create a
 21 prototype of the KBSC system that you invented?
 22 A Not entire KBSC.
 23 Q Any part of the KBSC system?
 24 A Yes, I do.
 25 Q What part?

Page 135

1 A The -- I believe it's the parser and the cell
 2 selector
 3 Q You never created the entire system; is that
 4 correct?
 5 A I --
 6 MR. SU: Objection as to form.
 7 A I don't recall.
 8 BY MR. OLIVER:
 9 Q You have no evidence of creating a prototype;
 10 isn't that correct?
 11 MR. SU: Objection as to form.
 12 A I do not recall, sir.
 13 BY MR. OLIVER:
 14 Q You produced in this litigation source code
 15 for the selector model -- module, but not for the
 16 entire KBSC system; isn't that correct?
 17 A I produced a code for parts of the KBSC.
 18 Q What parts?
 19 A The parser, the module selector.
 20 Q Anything else?
 21 A And the frames database system.
 22 Q Anything else?
 23 A There may be others that I do not recall at
 24 this time.
 25 Q That you produced?

Page 136

1 A I don't have any documents right now.
 2 Q So just so the record is clear, you only
 3 produced source code for the parser, the cell selector
 4 and the frame-based database; is that correct?
 5 A That's correct.
 6 Q When you conceived of the KBSC system, did you
 7 do so utilizing any resources from ICC?
 8 A To the best of my knowledge, no.
 9 Q Were you working for ICC at the time that you
 10 conceived of the KBSC system?
 11 A No, sir.
 12 Q Did anyone at ICC direct you to invent the
 13 KBSC system?
 14 A No, sir.
 15 Q Do you believe that Dr. Kobayashi left you off
 16 of the 432 patent, which is now Exhibit 519,
 17 intentionally?
 18 A Yes, I do.
 19 Q What was his motive?
 20 A To the best of my knowledge, I believe he was
 21 very bitter that I, you know, left him.
 22 Q So bitter that he filed a patent without your
 23 knowledge?
 24 A Possibly.
 25 Q So bitter that he created an entire

Page 137

1 corporation based on your system; right?
 2 A That's not correct.
 3 Q Oh, the corporation wasn't based on your
 4 system?
 5 A No. I say he did not create the corporation
 6 just because I left him.
 7 Q The corporation existed before you left him;
 8 right?
 9 A That's correct.
 10 Q He was already attempting to commercialize a
 11 KBSC system; isn't that correct?
 12 A Say that again.
 13 Q Dr. Kobayashi was already trying to
 14 commercialize a KBSC system before you left him;
 15 right?
 16 A Say that again.
 17 Q When you began working for him in 1986, he was
 18 already working on a KBSC system; wasn't that correct?
 19 MR. SU: Objection as to form.
 20 A I did not start working for him in '86.
 21 BY MR. OLIVER:
 22 Q Oh, when did you start working for him, for
 23 ICC? Step back. When I say "working for him," I
 24 meant working for him as an employee or consultant to
 25 ICC.

35 (Pages 134 to 137)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 138

1 A Okay. Okay.
2 Q So my question is, when you started working
3 for ICC under Dr. Kobayashi in 1986, Dr. Kobayashi was
4 already trying to commercialize a KBSC system; isn't
5 that correct?
6 A I'm not aware of.
7 Q You were working on the module selector; isn't
8 that right?
9 A I was working on -- that's correct.
10 Q Module selector was used for the KBSC system;
11 isn't that correct?
12 A That's correct.
13 Q Was it used for any other system?
14 A Possible.
15 Q Do you know of any other application for the
16 cell selector?
17 A Possible.
18 Q Could it be used for any non-rule-based
19 system?
20 A Possible.
21 Q So the cell selector is not critical to the
22 KBSC system; is that correct?
23 A That's not correct.
24 MR. SU: Objection as to form
25 BY MR. OLIVER:

Page 139

1 Q Who did you work with at ICC?
2 A Can you clarify, what do you mean by "who do
3 you work with"?
4 Q Names of people you worked with while at ICC.
5 A Toro (phonetic) Ozeki and a few others that I
6 have, you know, I've forgotten the names.
7 Q Do you know what Mr. Ozeki was doing?
8 A Yes
9 Q What was he doing?
10 A His role was routing and placement.
11 Q Routing and placement of what?
12 A Of cells, modules.
13 Q For a KBSC system?
14 A That's correct.
15 Q Your KBSC system?
16 A Uh-huh.
17 Q Do you know what the others were working on?
18 A I do not recollect what the other students are
19 working on.
20 Q Did anyone ever go to you for advice as to how
21 to build a prototype for the KBSC system?
22 MR. SU: Objection as to form.
23 A I do not recall, sir.
24 BY MR. OLIVER:
25 Q Is there any other reason why you believe

Page 140

1 Dr. Kobayashi left you off of the 432 patent?
2 A Say that question again.
3 Q Is there any other reason, other than the fact
4 that he was bitter for you having left him, for
5 Dr. Kobayashi to leave you off of the 432 patent?
6 A Say that again.
7 Q Is there any other reason, other than the fact
8 that Dr. Kobayashi was bitter for you having left him,
9 that Dr. Kobayashi would have intentionally left you
10 off of the 432 patent?
11 A I do not know.
12 Q Do you have any evidence that Dr. Kobayashi
13 intentionally left you off the patent?
14 A I do not know.
15 Q You have no written documentation that
16 Dr. Kobayashi intentionally left you off the patent;
17 isn't that correct?
18 A That's correct.
19 Q You have no real basis for stating that
20 Dr. Kobayashi intentionally left you off the patent;
21 isn't that correct?
22 A Say that again.
23 Q You have no real indication that Dr. Kobayashi
24 intentionally left you off the patent; isn't that
25 correct?

Page 141

1 MR. SU: Objection as to form.
2 A I do not know the answer to that question.
3 BY MR. OLIVER:
4 Q And you don't know whether or not you have any
5 proof that he intentionally left you off the patent?
6 A I do not know of any proof.
7 Q You don't have any proof; isn't that correct?
8 A That's correct.
9 Q Isn't it possible that he truly believed that
10 this work was his own work and the work of his joint
11 inventor?
12 A Say that again.
13 Q Isn't it possible that Dr. Kobayashi truly
14 believed that the work that was patented was the work
15 of his own and his co-inventor?
16 A Could you rephrase that?
17 MR. SU: Objection as to form.
18 BY MR. OLIVER:
19 Q Isn't it possible that Kobayashi believed that
20 he was the true inventor, along with his co-inventor,
21 on the 432 patent?
22 A I do not know the answer to that.
23 MR. SU: Objection as to form.
24 BY MR. OLIVER:
25 Q Handing you what has been previously marked as

36 (Pages 138 to 141)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 142

1 Kobayashi Exhibit No. 4, would you -- I'm sorry,
2 bearing production numbers KBSC 0001 through 0028.
3 Would you take a moment to review that document and
4 let me know when you've finished.
5 A Okay (examining document). Okay.
6 Q Do you recognize Exhibit 4?
7 A Could you explain, what do you mean by
8 "recognize"?
9 Q Have you seen it before?
10 A No, sir.
11 Q This is an agreement bearing the date January
12 15, 1987. Were you working at ICC at the time?
13 A Say that again.
14 Q Were you working at ICC at the time of January
15 15, 1987?
16 A It is possible.
17 Q Would you please turn to appendix A, which
18 starts on page 0009 of Exhibit 4.
19 A Okay.
20 Q Do you recognize any of the elements listed as
21 one through nine on that page?
22 A Yes.
23 Q Did you invent any of the elements shown on
24 that page?
25 A Yes.

Page 143

1 Q What elements did you invent?
2 A I believe, to the best of my knowledge, would
3 be the AAF translator, the cell selector and the
4 netless generator, and possibly elements of the
5 controller equation generator and the cell generator.
6 Q When you made that clarification after the
7 break, did you do so because your attorney advised you
8 to make that clarification?
9 A No, sir.
10 Q Did you make it on your own volition?
11 A Say that again
12 Q Did you make it on your own?
13 A Yes, sir.
14 Q Did you write the Neptune program yourself?
15 A That's correct, sir.
16 Q Did anyone help you?
17 A No, sir.
18 Q Who is Stuart Anderson?
19 A I don't quite remember him.
20 Q Would you turn to pages 024 and 025 of Exhibit
21 4?
22 A Okay.
23 Q 024 has the title "Cell Selector."
24 A Uh-huh.
25 Q At the top of page 025 there is a program

Page 144

1 named Neptune.
2 A Uh-huh.
3 Q Does the cell selector on page 024 and the
4 Neptune program, 025, reflect your invention?
5 A Say that again.
6 Q Did you invent the cell selector on page 024
7 and the Neptune program of 025?
8 A Yes, sir.
9 Q Is the Neptune used for cell selection?
10 A Yes, sir.
11 Q Why is Stuart Anderson listed on page 025 as
12 the designer with you of Neptune?
13 A I do not know, sir.
14 Q You don't know?
15 A I don't know.
16 Q Isn't it possible that the Neptune program
17 that is listed in this document is not your Neptune
18 program?
19 A That's not possible.
20 Q Why is that?
21 A I'm the person who wrote that program.
22 Q Isn't it possible that Stuart Anderson revised
23 the program to make it marketable?
24 A I do not know the answer to that.
25 Q Other than the name "Neptune," you have no

Page 145

1 idea whether or not the program was ever used in any
2 product of ICC; isn't that correct?
3 A Say that again.
4 Q Other than the name "Neptune," shown on this
5 page, you have no idea whether or not the program that
6 you know to be Neptune was ever used?
7 A I do not know that.
8 Q In fact you have no idea whether any of the
9 work that you did ultimately was reduced to practice
10 into a working prototype; isn't that right?
11 A I do not know.
12 Q You don't know whether or not the 432 patent
13 was based on a working prototype that was made long
14 after you had left Dr. Kobayashi; isn't that right?
15 MR. SU: Objection as to form.
16 A I do not know the answer to that.
17 BY MR. OLIVER:
18 Q Is it your testimony that the Neptune program
19 was completed as of January 15, 1987?
20 A Say that again.
21 Q Is it your testimony that the Neptune program
22 was already completed by 1987, January 15, 1987?
23 A Could you clarify by what you mean by
24 "completed"? Completed totally bug free or
25 completed --?

37 (Pages 142 to 145)

Page 146

1 **Q Was it operable?**
 2 A Definitely it was operable.
 3 **Q Did it perform cell selection?**
 4 A Yes.
 5 **Q And at the time you did it independently;**
 6 **isn't that correct?**
 7 A Say that again.
 8 **Q At the time you created the Neptune program**
 9 **independently; isn't that correct?**
 10 A That's correct.
 11 **Q Would you turn to page 028 of Exhibit 4.**
 12 **There is a row towards the bottom that says "cell**
 13 **selector"; do you see that?**
 14 A Yes, I do.
 15 **Q Did you write the specification for the cell**
 16 **selector?**
 17 MR. SU: Objection as to form.
 18 A I do not recall.
 19 BY MR. OLIVER:
 20 **Q In fact, this page indicates that the cell**
 21 **selector specification had not yet been fixed and**
 22 **would be fixed two months from the schedule listed;**
 23 **isn't that correct?**
 24 MR. SU: Objection as to form.
 25 A I do not recall.

Page 147

1 BY MR. OLIVER:
 2 **Q According to this table, the development of**
 3 **the cell selector wouldn't be finished for another six**
 4 **months; isn't that correct?**
 5 A I do not recall, sir.
 6 **Q And in fact the cell selector would not be**
 7 **debugged, finished and document writing finished until**
 8 **eight months later; is that correct?**
 9 A I do not recall.
 10 MR. SU: Objection as to form
 11 BY MR. OLIVER:
 12 **Q Do you have any doubt that this timetable is**
 13 **accurate?**
 14 MR. SU: Objection as to form
 15 A I do not recall, sir.
 16 BY MR. OLIVER:
 17 **Q Would you turn back to Exhibit 508? This is**
 18 **the knowledge-based system article.**
 19 A Okay.
 20 **Q You don't make reference to a knowledge-based**
 21 **selecting compiler in this article; do you?**
 22 A Say that again
 23 **Q You do not make any reference to a**
 24 **knowledge-based silicon compiler in this article;**
 25 **isn't that correct?**

Page 148

1 A According to page 180 -- I'm sorry -- page 916
 2 of this Exhibit 508, to the best of my knowledge there
 3 is no reference to any knowledge-based system.
 4 **Q The bottom of page 914, the last paragraph, it**
 5 **starts with the phrase, heuristic rules. Do you see**
 6 **that? What do you mean by heuristic rules?**
 7 A Heuristic rules are rule of thumbs.
 8 **Q Are heuristic rules synonymous with expert**
 9 **rules?**
 10 A Possibly
 11 **Q Did you intend the term "heuristic rules" to**
 12 **refer to expert rules?**
 13 A Say that again.
 14 **Q In your article on page 914, when you use the**
 15 **term "heuristic rules," did you intend to mean "expert**
 16 **rules"?**
 17 A Possibly.
 18 **Q You can't tell for certain?**
 19 A It's quite possible.
 20 **Q Is it quite possible that you did not mean the**
 21 **term to be expert rules?**
 22 A Say that again.
 23 **Q You said it was possible, but isn't it also**
 24 **possible that the term heuristic rules does not refer**
 25 **to expert rules?**

Page 149

1 A Like I mentioned earlier, the heuristic rules
 2 are rule of thumbs that experts have relied on.
 3 **Q Experts rely on heuristic rules, but do**
 4 **heuristic rules embody expert design knowledge?**
 5 A That's one way.
 6 **Q One way?**
 7 A Uh-huh.
 8 **Q In this article, can you point to any expert**
 9 **rules?**
 10 A On page 000914 of Exhibit 508, and in the
 11 middle of the page there are three -- I'm sorry, four
 12 lines, starting with "if," then statements, those are
 13 the rules.
 14 **Q Are there any expert rules disclosed in**
 15 **Exhibit 508?**
 16 A Any other rules?
 17 **Q Yes.**
 18 A Besides the one I just pointed out?
 19 **Q Yes.**
 20 A (Examining document). Yes
 21 **Q What rules are --**
 22 A That would be on page 915 of Exhibit 508, in
 23 the bottom of the first column, starting with item
 24 number six, repeat for each instance in W, and then
 25 you have the else if statements.

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 150

1 **Q Are these expert rules?**
2 A To the best of my knowledge, yes.
3 **Q Any other rules in this document?**
4 A In item number three, the same page, if
5 subfunction has a list of logic components, then
6 append to list S and notified user, or else announce
7 failure.
8 **Q Any other rules?**
9 A Item number seven and item number nine. That
10 would be all.
11 **Q There is a reference to a CMUDA system on page**
12 **914 in the introduction paragraph. Do you see that?**
13 A Yes, sir.
14 **Q Do you recall the CMUDA system?**
15 A Yes
16 **Q How does that system differ from your KBSC**
17 **system?**
18 A I do not recall the details. It's been a long
19 time.
20 **Q You wouldn't make reference to it unless you**
21 **thought there was a difference; isn't that correct?**
22 A That's correct, sir.
23 **Q You would not publish a paper citing it or**
24 **even publish the paper at all if you believed that the**
25 **work was not unique; isn't that correct?**

Page 151

1 A That's correct
2 **Q Is there any doubt that you believe there was**
3 **a difference between your KBSC system and the CMUDA**
4 **system that was cited in your paper?**
5 A Say that again.
6 **Q Is there any doubt that you thought there was**
7 **a difference between the KBSC system and the CMUDA**
8 **system?**
9 A I do not recall.
10 **Q Shall we take a break?**
11 THE WITNESS: Sure.
12 (Short recess).
13 BY MR. OLIVER:
14 **Q Okay. Back on the record. When is the last**
15 **time you spoke to Mr. Ozeki?**
16 A When you say spoke with --
17 **Q For any reason.**
18 A Are you talking about through the phone or in
19 person?
20 **Q Either.**
21 A I believe, to the best of my recollection, the
22 last time I spoke with Mr. Tour row Ozeki was back in
23 1993.
24 **Q Why did you speak to him?**
25 A I do not recall, sir.

Page 152

1 **Q You didn't speak to him after you had a**
2 **conversation with Michael Weinstein of my office?**
3 A Oh, absolutely no. It was way before Michael
4 Weinstein called me.
5 **Q Did you speak with anyone after you spoke with**
6 **Michael Weinstein?**
7 A Did I speak with anybody?
8 **Q In connection with this litigation or**
9 **Dr. Kobayashi's work?**
10 A No, I did not discuss it with anybody.
11 **Q Other than the place in routing, what else did**
12 **Dr. -- I mean did Mr. Ozeki do in terms of working on**
13 **the KBSC system for ICC?**
14 A I do not know, sir.
15 **Q Do you believe there are any others who were**
16 **left off of the inventorship of the 432 patent besides**
17 **yourself?**
18 A I do not know --
19 **Q Should Mr. Ozeki have been an inventor?**
20 A I do not know the answer to that question,
21 sir.
22 **Q Handing you what has been marked Exhibit 521,**
23 **bearing production numbers FOO 000189 through 0191.**
24 **This is a document entitled "Project Description for**
25 **ECE 890B," spring 1986. Would you take a moment to**

Page 153

1 **look at that and let me know when you've finished.**
2 A (Witness complies). Okay. I'm ready.
3 (Exhibit No. 521 was identified for the
4 record).
5 BY MR. OLIVER:
6 **Q Do you recognize Exhibit 521?**
7 A Yes, sir.
8 **Q What is it?**
9 A This is a project description proposal that
10 was submitted for this class in the spring 1986.
11 **Q What class is this?**
12 A The name, the title of the class is -- I'm
13 sorry, number of the class is ECE 890B.
14 **Q Who was the instructor of that class?**
15 A I don't recall, sir.
16 **Q Are these your ideas depicted in Exhibit 521?**
17 A That's correct, sir.
18 **Q Where did you get these ideas?**
19 A Based on the courses that I've taken prior to
20 this course.
21 **Q Did Dr. Kobayashi provide you with any of**
22 **these ideas?**
23 A I do not recall, sir.
24 **Q You recited a document or paper authored by**
25 **Dr. Kobayashi; isn't that right?**

39 (Pages 150 to 153)

Page 154

1 A That's correct.
 2 **Q In fact it's authored by Kobayashi and**
 3 **Takefuji; right?**
 4 A That's correct.
 5 **Q Why did you cite that?**
 6 A There was a paper that talks about the SDF.
 7 **Q What is the SDF?**
 8 A The state description form.
 9 **Q And what's the SDF used for?**
 10 A Basically the SDF is an intermediate form for
 11 describing state transitions.
 12 **Q What is it used for?**
 13 A It can be used to describe finite state
 14 machines.
 15 **Q Anything else?**
 16 A Not that I know of.
 17 **Q You didn't invent the concept of silicon**
 18 **compilation; did you?**
 19 A No.
 20 **Q But you invented a knowledge-based silicon**
 21 **compilation; isn't that right?**
 22 A To the best of my knowledge, yes.
 23 **Q Is this a self-study course, ECE 890B?**
 24 A I do not recall, sir.
 25 **Q Dr. Kobayashi was the instructor; isn't that**

Page 155

1 **right?**
 2 A I'm not sure. I do not recall.
 3 **Q Do you have any reason to doubt Dr. Kobayashi**
 4 **was the instructor?**
 5 A Could be, but, again, I don't have any
 6 recollection.
 7 **Q Handing you what has been marked as Exhibit**
 8 **522. This is a document bearing production numbers**
 9 **KBSC 0094 through 1005. Would you take a moment to**
 10 **review this exhibit and let me know when you finish.**
 11 A (Examining document) Okay.
 12 (Exhibit No. 522 was identified for the
 13 record)
 14 BY MR. OLIVER:
 15 **Q Do you recognize Exhibit 522?**
 16 A I do not recall, sir.
 17 **Q Is this not the article presented at a**
 18 **Greenville, South Carolina --**
 19 A It could be.
 20 **Q -- trade show that you discussed earlier**
 21 **today?**
 22 A Possibly.
 23 **Q It's the one you saw on the Internet; right?**
 24 A Possibly.
 25 **Q Do you believe that there are any ideas of**

Page 156

1 **yours reflected in Exhibit 522?**
 2 A Yes, sir.
 3 **Q Which ideas?**
 4 A The idea of knowledge-based approach to VLSI
 5 CAD.
 6 **Q Do you believe that is your idea, not**
 7 **Dr. Kobayashi's, of a knowledge-based system for**
 8 **translating high-level specifications to VLSI systems**
 9 **based on designer's expert knowledge?**
 10 A That's correct, sir.
 11 **Q Do you believe it's your ideas and not**
 12 **Dr. Kobayashi's of a mapping a set of macro operations**
 13 **to functional modules?**
 14 A Say that again.
 15 **Q Do you believe it is your idea, not**
 16 **Dr. Kobayashi's, to map a set of macro operations to**
 17 **functional modules?**
 18 A That's correct.
 19 **Q Did the mapping of functional modules use your**
 20 **Neptune program?**
 21 A Say that again.
 22 **Q Did the mapping of macro operations to**
 23 **functional modules utilize your Neptune program?**
 24 A Are you referring to this article?
 25 **Q Yes, the mapping that's discussed in this**

Page 157

1 **article.**
 2 A Okay.
 3 **Q Did this mapping that you claim to be your**
 4 **idea utilize your Neptune program?**
 5 A The -- say that again.
 6 **Q Does Exhibit 522 describe the concept of**
 7 **mapping a set of macro operations to functional**
 8 **modules, utilizing your Neptune program?**
 9 A My Neptune program is a cell selection -- what
 10 are you talking "mapping"?
 11 **Q Is there a difference between "mapping" and**
 12 **"cell selection"?**
 13 A Oh, yes.
 14 **Q What's the difference?**
 15 A Cell selection is one thing, and mapping,
 16 you're talking about one-to-one. Cell selection, it
 17 could be more than one possibility.
 18 **Q Do you believe that when Dr. Kobayashi**
 19 **describes mapping here, he does not describe cell**
 20 **selection?**
 21 A Are you referring to the abstract?
 22 **Q I'm referring to the introductory paragraph on**
 23 **page 997, second paragraph.**
 24 A And what's your question again?
 25 **Q Do you believe that the use of the term**

40 (Pages 154 to 157)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 158

1 "mapping" in the second sentence of the second
2 paragraph on page 997 refers to something other than
3 cell selection?
4 A Say that one more time.
5 Q Do you believe that the term "mapping,"
6 appearing on page 997 in the sentence, mapping a set
7 of macro operations to functional modules refers to
8 something other than cell selection?
9 A Yes, sir.
10 Q Nevertheless, do you believe you invented this
11 concept of mapping as described in that sentence?
12 A Yes, sir.
13 Q Do you believe there is anything in this
14 Exhibit 522 that you did not invent?
15 A I did not invent the antecedent action form.
16 Q Would you identify that by page and --
17 A That is page 998 of Exhibit 522.
18 Q You did not invent the AAF form itself; is
19 that correct?
20 A That's correct, sir.
21 Q You invented the use of the AAF form in the
22 knowledge-based system; isn't that correct?
23 A That's exactly correct, sir.
24 Q Do you believe the concepts described in
25 Exhibit 522 to be the concepts patented in the 432

Page 159

1 patent?
2 A Say that again.
3 Q Do you believe the concepts described in this
4 Exhibit 522 to be the same concepts that were patented
5 in the 432 patent?
6 A That's correct, sir.
7 Q Is that why you believe that you are inventor
8 of the 432 patent?
9 A Say that again.
10 Q Is that where you believe you are the inventor
11 of the 432 patent?
12 A Why -- are you talking about what you just
13 mentioned earlier?
14 Q Do you believe that the ideas shown in this
15 Exhibit 522 are your own?
16 A That's correct, sir.
17 Q Do you believe that these same ideas are the
18 ideas in the 432 patent?
19 A That's correct.
20 Q Do you therefore believe that you are an
21 inventor of the 432 patent because the ideas in this
22 article, 522, are the same ideas in the 432 patent?
23 A The reason I believe the ideas in the patent
24 are mine is because of the documents that I have
25 produced, my -- specifically the hand-sketched notes

Page 160

1 and the programs that I have wrote.
2 Q Any other reason?
3 A Not at this point.
4 Q At some other point will you have other
5 reasons?
6 A Could be, possibly.
7 Q Do you have any documents that you have not
8 produced that may refresh your recollection?
9 A I do not.
10 Q You made some clarifications already on the
11 record. Are there any other changes to your testimony
12 that you wish to make?
13 A Not at this point.
14 Q Are there any questions that you answered that
15 you now believe you did not properly understand?
16 A No, sir.
17 Q You mentioned that you don't recall on a
18 number of occasions. Do you at this time have any
19 memory of anything that you at that time did not
20 recall when I asked that question?
21 A Could you say that question again.
22 Q You answered "I don't recall" to several of my
23 questions. Do you now, at this time, recall any
24 answers to any of those questions?
25 A No, sir.

Page 161

1 MR OLIVER: I have no more questions at this
2 time.
3 MR. SU: Okay. I have no questions. We will
4 read and sign.
5 (The deposition was concluded at 4:30 p.m.
6 Reading and signing is not waived).

41 (Pages 158 to 161)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 162

CERTIFICATE OF OATH

STATE OF FLORIDA)
COUNTY OF LEON)

I, the undersigned authority, certify that said
designated witness personally appeared before me and was
duly sworn.

WITNESS my hand and official seal this day
of June, 2006.

SARAH B GILROY

Page 163

CERTIFICATE OF REPORTER

STATE OF FLORIDA)
COUNTY OF LEON)

I, SARAH B. GILROY, Registered Professional Reporter,
certify that the foregoing proceedings were taken before
me at the time and place therein designated; that my
shorthand notes were thereafter translated under my
supervision; and the foregoing pages numbered 1 through
162 are a true and correct record of the aforesaid
proceedings.

I further certify that I am not a relative, employee,
attorney or counsel of any parties, nor am I a relative
or employee of any of the parties' attorney or counsel
connected with the action, nor am I financially
interested in the action.

DATED this day of June, 2006.

SARAH B. GILROY, RPR, CRR
Notary Public

My Commission Expires: 02-02-10
My Commission Number DD 075718

42 (Pages 162 to 163)

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 1

A				
AAF 54:24,25 55:1,5,6 143:3 158:18,21 ability 38:24 able 27:4 28:21,23 38:23 105:4 108:3 absolutely 17:11 152:3 abstract 30:7 59:18 157:21 academia 37:16 acceptable 35:15 accidentally 41:9 accomplish 90:25 98:23 accurate 92:24 147:13 action 109:19 158:15 163:15,16 actual 12:22 add 5:5 33:12 120:17 added 123:14 adder 33:11,14 68:20 68:21,22,23 additional 124:2 address 4:13 adjunct 59:8 administrative 72:13 advance 21 10 advantage 84:12 advice 9:25 19:6 42:2 43:15 139:20 advise 9:6,9,10,13 41:19 72:4 advised 9:11 143:7 advising 8:2,3 advisor 7:15,18,19,22 25:19 56:15 62:6,7 63 21 64:2 77 14 81 6 107:11 125:10 126:22 advisors 31:11 108:4,9 AEROFLEX 1:10 affirmatively 8:8 16:14 aforesaid 163:9 ago 70:20 agreement 20:6 47:19 47:23 48:4,6,10,12,19 48:23 142:11 agreements 48:13,21 algorithm 41:1 Algorithms 3:10 allegedly 36:10 Alto 2:5 AMI 1:10 Anderson 143:18 144:11,22 annotations 122:7	announce 150:6 answer 14:3 18:25 19:3 41:24 42:1 141:2,22 144:24 145:16 152:20 answered 93:2 160 14 160:22 answering 124:1 answers 160:24 antecedent 158:15 anybody 16:11 73:12 125:5 152:7,10 anymore 35:19 81:6 anyway 52:8 Apalachee 1:22 apartment 74:4,5,9 Apartments 74:10 apologize 123:2 appear 88:3,20 102:20 123:19 APPEARANCES 2:1 appeared 162:6 appearing 158:6 appears 80:25 82:13 109:2,13,17,18,20 112:24 113:6,7,20,22 123:15 append 150:6 appendix 142:17 application 24:15 34:19 98:8,10 138:15 application-specific 109:18 applied 57:11 98:16 apply 29:7 55:13 108:20,23 applying 25 20 26:3 appreciate 57:10 appreciation 58:23 approach 3:14,23 156:4 approached 19:11,16 19:18 Approach 123 3:22 approximately 22:11 112:22 April 19:10,19 architecture 3:8 76:9 area 6:10 7:24,25 23 6 26:6,8 35:5,18 40:10 40:11 50:10 68:8 84:16,19 argumentative 132:22 arranged 96:15 arrangements 96:20 article 60:2 122:24 147:18,21,24 148:14	149:8 155:17 156:24 157:1 159:22 articles 16:23 81 19 artificial 25:13 35 5 59:16 asked 45:3 72 24 92:25 93:3 133:3 160:20 asking 12:9 19:15 assigned 72:8 assist 6:10 assistance 10:2 43:3,5 assistant 6:3,9,21 7:20 36:2 assisted 10:17,18,20 13:2,9 associate 36:1 assume 19:22 112:16 attached 122:24 attachment 123:3 attempt 79 5 97:12 attempting 137:10 attorney 19:21 41:19 42:2 43:15 143:7 163:13,14 attorneys 17:4 106:22 attributed 14:18,21 authored 77 9 81:19 153:24 154:2 authority 40:8 162:6 automatically 104:7 available 109:14 114 5 114:15 avenue 2:4 98:22 awarded 108:1 aware 51:12 55:16 64:20 107:18,20 108:8 121:10,12 138:6 a.m 1:19	100:6 109:16 110:12 113 7,21 114:7 based 11:5,16,20 26:5 29 5 59:19 67 5 69:18 72:21 79:1 99:9 120:18 127:7 129:1,14 130:15 137:1,3 145:13 153:19 156:9 basic 33:19 basically 7:23 15:6 42 7 69:21 83 19 128 7 154:10 basics 59:13 basis 140:19 bearing 4:17 11:8 60:14 61:2,15 80:17 87 6 142:2,11 152 23 155 8 bears 27:20,22,23,24 28:1 88:9,10,11,12,13 88 15,16 123:7 began 92:5 115:2 137:17 beginning 111 4 114:6 begins 109:22 112:22 113:22 114:7,8,16 115 8,8,12,13,16,21 115:23 behavior 82:23 83:4 behavioral 3:20,21,22 58 18 59:11 believe 7:11,14 8:10 9:4 10 4 12:17 13:14,17 13 24 14:4,7 15:7 16 2 18:11 19:9,17,19 20:4 21:17 24:1 26:3 30:15,20 31:5 32:24 34 16 36:8 42:15 44 24 51:7 54:17 62 10,25 67:2 69:7,16 72:21 74:2 79:22 81 9 83:22 85:5,16 92 23 103:11 107:1 110:1,17,22 118:5 122:14,16 128:13 130:13,15 133:3 135:1 136:15,20 139:25 143:2 151:2 151:21 152:15 155:25 156:6,11,15 157:18 157:25 158:5,10,13 158:24 159:3,7,10,14 159:17,20,23 160:15 believed 141:9,14,19 150:24	belong 47:17 belonged 47:21 belonging 75:13 belongs 111 7 Bend 74:10 best 5:7,9 6:1,17 8:11 13:17,25 15:20 19:9 19:19 20:4 22:4 24:3 30:12 32:17 35:22 43:10 48:11,17 50:9 54:17 55:24 56:3 57:15 58:5 59:3 61:25 63:20 65:9 71:4 73:24 74:2 77:3 77:5 81:12,15 82:15 88:23 89:7 92:7 93:21 97:6,21 99:17 101:9 107:1 112:14 113:18 114:17 115:17 117:6 120 18 125:20 127:24 131:22 136:8 136:20 143:2 148:2 150:2 151 21 154:22 big 15:9 bigger 72:15,17 biggest 97:14 billed 18:12,23 bit 51:14 98:14 bitter 136:21,22,25 140:4,8 block 33:24,25 86:5 88:21,22 89:22 90:1 90:15 102 9,12 blocks 33:8,19 66:13 96:14,20 102:22 blurred 37:17 boast 75:1 Bonnell 8:23,24,25 22:15 24:13 25:11 26:14,17,19 28:8,11 28:25 29:3,10,15,18 29:21,25 34:8,12,18 35:1,3,4 42:17,20 57:8,10 59:5,15 94:17 95:10,20 Bonnell's 41:4 boss 31:10 bother 52:7 bottom 25:4 33:20 83:14 92 13 146:12 148:4 149:23 bound 69:23 break 40:16 76:1 95:24 121:5,14 143:7 151:10 broad 99 8,14,20
B				
		B 1:24 162:12 163 4,21 back 16:15,15 40:19 42:13 43:19 44:1 45:7,24 46 2 49:6 50:5 76 4,4,14 82 8 85:15 92:24 96:3,3 121:18 137:23 147:17 151:14,22 background 131.12,13 131:14 base 3:15,17 67:3,4 68:2,13 69 5 82:25 83:13,13,15 84:1,9 97:23,24 98:3,4,10,20 98:22,25 99:3,9 100:2		

Page 2

bubbled 111:25 123:13 bug 145:24 bugs 134:19 build 139:21 building 33:8,19,24,25 66:13 Built-in 3:15,17 87:2 <hr/> C C 2:3 27:12 86:18 CAD 3:12 8:9,15 25:6 60 25 156:5 CAD" 155 3:23 California 1:1 2:5 call 31:16 33:17,18 122:10,11 called 4:3 8:9,14 10:11 32:22,23,24 34:1 36:21 40:21 60:1 74:9 86:21 152:4 caption 76:8 capture 93:18 94:1 capturing 93:24 Carolina 5:17 13 19 14:2 22:2 35:20,25 36:3 37:6 47 20 48:22 49:1,8,10,14 133:17,24 155:18 carry 68:23 case 45:24 cell 3:11,13 16 21,24 17:3 31:18 32:11,12 36:21 39:23 40:1,2,25 53 8,13,15 60:9 66:11 66:12 68:8 78 17,19 79:17 80:2,7 90:20 97:10,15,16,19,22 98:16,18,23,24 99:2,4 99:21 100:9,24 101:24,25 112:6,9,21 112:24 113:5,20 135:1 136:3 138:16 138:21 143:3,5,23 144:3,6,9 146:3,12,15 146:20 147:3,6 157:9 157:12,15,16,19 158:3,8 cells 32:13,15 33:5,7,8 33:13,15,17,18,21,22 34:3 100:2,6 109:15 110:11 114:6,16 139:12 Cell-Selection 3:10 certain 42:15 86:15 117:25 118:5 126:4 127:11,15,19,22	128:15,19,23 129:12 148:18 certainly 39:4 certainty 128:2 CERTIFICATE 3:25 3:25 162:1 163:1 certify 162:6 163:5,12 change 40:4 104:7,11 104:13 123:22,25 changed 108:4 changes 103:24 160:11 checkmark 123:13 chip 63:8 102:15 circuit 6:14 7:5 11:1 102:1,2,17,21,25 109:15,18 114:5,15 circuits 6:11,13 33:9 59:14 66:13 circumstances 79 11 cite 154 5 cited 81:19 151:4 citing 150:23 claim 109:2,7,7,11,11 109:12,12,23,25 110:16 111:3,7,10,15 111:18 112:5,16,17 112:17,20,21 113:3,5 113:10,13,19 114:3,4 116:2,3,13 117:16,17 117:20 118:5,9,14,16 118:18,20,22,24 119:1,3,5,7,10,13,16 119:19,22,25 120:3,6 120:9,12,15,20,21,23 120:23 121:1,3,3 123:16,20,20 124:12 124:14,16,19,22,25 125:2,3 157:3 claims 110:20,20 111:20 112:12 113:13 113:16,25 117:8,14 117:14,16,21,25 118:6 121:1 clarification 41:2,5,11 41:12,13,15 121:9,14 143:6,8 clarifications 41:7,20 121:9 160:10 clarify 16:16 40:20 62:15 77 5 85:9 90:23 115:25 133:2 139:2 145:23 class 24:9,11,13,14 25:12,14,18 26:10,13 26:18,20,21,25 27:13 28:8,24 29:5,6,9,14	29:17,21,25 30:1,3,4 30:5,6 34:8,12 41:4,4 41:9 42:16,19 57:20 57:22 58:1,7 153:10 153:11,12,13,14 clause 112:17 clear 34:6 49:16 56:19 104:20 111:6 116:19 121:21 136:2 clearly 35:17 CMUDA 150:11,14 151:3,7 coauthor 11:2 13:1 62:3 80:9 coauthored 25:8 80:25 92:2 code 27:9,11 46:4,6,12 46:18 47:11,13 49:17 49:22 50:23,25 51:1 83:15,18,19 86:2,3,22 86:25 87:20,23 91:24 92:5,7 103:11 104:19 135:14,17 136:3 codes 27:12 46:11 coin 53:22,25 collaborated 95:15 collection 102:19 college 65:4 Columbia 5:17 74:10 column 108:13,14,25 109:3 110:10 112:6 112:22 113:2 114:9 115:21 149:23 come 24 7 25:23 54:5 54:19,23 58 8 78:21 105:2,8,11,13 106:3,6 106:10 comes 65:2 92:13 126:21 Commenced 1:19 commercial 36:20 37:4 52:22 53:2 commercialize 108:6 137:10,14 138:4 commercializing 107:20 Commission 163:24,24 common 97:23 company 1:5,7,16 2:6 36:5 37:5,9,17 63:22 63:24 64:2 72:10,23 compensated 18:3,5,9 compensation 48:24 49:2 73:10 75:17,20 compilation 154:18,21 compiler 3:19,20 53:17	53:18,19,23 56:5 72:18,20 76:11 82:16 87:17 89:12 92:10 93:10,15,23 94:11,16 94:20 95:2,5 97:13 147:21,24 compiling 53:16 complete 9:11 24:10 32:7,8,16 38:13 completed 10:25 30 8 31:22 32:17 35:8 38:14 39:3 50:17,22 51:1 89:1,2,6 90:11 90:13,16,17 110:25 145:19,22,24,24,25 completely 53:5,8 completing 91:8 93:4 complies 11:14 28:13 42:14 76:6 82 9 87:10 106:17 153:2 component 72:6 102:7 102:13,14 components 150:5 comprise 28:7 computer 27:8 44:16 44 19,21 45:5 47:3,9 49:13,18,24 65:14 103:13,16,20,25 104:4,6,11 105:2,5,9 105:12,13,17 116:17 116:23 computers 134:2 computer-generated 58:10 computer-plotted 27:8 conceive 92:9 conceived 76:22 91:4 92:11 93:1 94:5 133:22 136:6,10 concept 154:17 157:6 158:11 concepts 158:24,25 159:3,4 conceptual 10:24 concerned 75:21 concluded 161:5 condition 39:1 109:20 confidentiality 20:9 configuration 55:8 confirm 112:3 confirmed 118:4 conflict 37:20 connected 17:22 163:15 connection 28:24 29:9 29:13,14 152:8	considered 131:17 constraints 84:16,19 consultant 17:25 19:7 19:12 21:7 36:6,7 37:14 48:14 71:25 72:3 132:20 137:24 consulting 17:15,18,20 18:4,12 contact 15:13 20:3 contacted 17:4 20:2,5 contains 104:19 contents 30:10 continuing 108:10 contribute 81:7,16 contributed 62:10 contribution 62:20,24 81:11 96:6,10,11,19 97:7 101:12 contributions 121:16 control 126:19 127:3,5 controller 82:19,20,23 83:5 143:5 conversation 12:22 20:7,8 107:4 127:8,10 152:2 conveyed 97:1 Convolution 3:7 convolution 10:12 11:3 11:10 copies 45:10,11,17,19 46:1,5,7,9,13,13,15 46:19,20,21,24 47:9 47:11 49:12,16,21,23 50:2 copy 10:14 30:3 44 18 44:24,25 45:4 46:7,19 46:21 47:15 80:14 104:5,10 122:5 CORP 1:12 corporation 63:8 137:1 137:3,5,7 correct 5 8 6:19 11:25 17:1 21:15 25:2,10,16 27:2,3,14 31:12,13 33:6,15 34:2,5,8,12 34:13 36:4,13,25 37:6 37:10,14 38:19 40:2 41:14 42:12,17,18,24 43:1,2 45:12,13,20,21 46:5,14 47:5,8,14,16 49:20 50:20,21 51:8 52:13 53:5,24 54:4 55:7,11,12,23 56:2 57:17,18,21 60:12,20 61:5,18 62:3,4,9 63:9 63:10 64:7,14,17,22
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Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 3

65:19 67:10 70:4,25 71:7 72:1,2 73:1,7,22 74:15 75:10,11 77:9 77:10,19 78:4,5,18 79:8,16 80:4,8,10,11 80:13,20 81:2,3,22,25 82:1 83:7,8,17 86:12 87:4 89:15,16 92:4,19 95:13 96:17 97:2,10 97:11,18,25 99:10,11 101:2,3 102:16,18 103:2,10,14,15 105:21 107:16 110:7 110:14,15 111:19 112 8,10,11,13,14,18 112:19,25 113:1,3,4,8 113:9,11,12,14,17,18 113:23,24 114:1,2 115 25 116:8,22 118.1,7 119:5,6,8,9 119:11,12,14,15,17 119:18,20,21,23,24 120:1,2,4,5,7,8,10,11 120:13,14,16,17 121.4 122:1,25 123 17,20,21,24 124 5,12,17,18,20 125.4,7,15 127:13,16 127:20,21,23 128:16 128:17 129:17,18 130:3 132:2,3,4,5,7,8 132:11,13,17,21 133:1,5,6 134.6,11 135:4,10,16 136:4,5 137:2,9,11,18 138:5,9 138:11,12,22,23 139 14 140:17,18,21 140 25 141:7,8 143:15 145:2 146:6,9 146:10,23 147:4,8,25 150:21,22,25 151:1 153:17 154:1,4 156:10,18 158:19,20 158:22,23 159:6,16 159:19 163:9 corrected 10:4 correction 124:24 corrections 58:11 129.14,16,17,19,23 130:2,5,10,15,17 Cosmetically 96:21,22 counsel 19:6 20:22,25 21:12,14,16,17,19 56:10 163:13,14 count 112:25 COUNTY 162:3 163:2	course 8:22 9:1,3 22.1 23:5,21,22 24:10,12 25:24 28:10 29:2 34:18 35:1,4 59 5,10 121:21 153:20 154:23 courses 7:7,10 8.2,3 9:10 22:6,9,12,13 23:6,8,10,15,22,23 26:16 44:7 54:2 58:21,25 59:2,4 69:18 94:16 153 19 Court 1:1 4:14 Courtyard 1:21 co-inventor 141:15,20 CO3-04669 1:9 CO3-2289 1:4 craft 99:8 create 43:24 54:15 78:21 90:6 103:25 134:20 137:5 created 47:13 50:7,13 65:10 68:12 69:11 72:25 76:23 77:1,2,18 78:3,10,12 89:18,22 90:10,14,17,24 95:6 101:8 105 15,16 134:10 135:3 136:25 146:8 creating 89:25 135:9 credit 14 16 critical 138:21 crossed 112:1,1 CRR 1:24 163:21 current 4:12 customary 62:7 CV 3:6 25:1 D D 3:1 data 3:13,15,17 8:10,15 8:22 25:7 60:25 109:14,21 110 10,14 114:5,8,14 115:21 database 8:10,16,21,25 34:17 35:2,2 40 23,25 42:11 69:4 84:20 87:2 135:21 136:4 Databases 3:10 date 1:18 9:18 18:13,14 37:22,25 38:10 50:7 103:16,18,19,19,22 103:23,23 104:3,7,9 104:11,13 106:24,25 115:11 116:11 142 11 DATED 163:17 dating 46:2	day 162:8 163:17 DC 2 9 DD 163:24 deal 79:17 dealt 79:19 80:2,6 debugged 147:7 decided 24:14 decisions 42:9 defend 39:2,12 Defendant 1:6 Defendants 1:13 defense 39:4 106:12 define 66:14 defining 33:13 definitely 15:9 146:2 definition 134:17,20 definitions 109 13,22 degree 5:19,21,24,25 7:16 9 11 37:1,7,9 delay 68:8 84:16,19 demand 73:10 demanding 37:11,12 demands 37:1,4 department 6 25 40:7 95:12 depending 104:6 depict 76:17 depicted 86:5 126:2 153:16 deposition 1:15 18:10 20:15,18,24 161:5 derived 44:10,12 describe 15:5 30:5 60:5 61:10,23 81 10 82:22 83:4 154:13 157 6,19 described 33:1 60:22 75:8 81:8 97:5 109:19 158:11,24 159:3 describes 91:14 157:19 describing 15:4 60:16 60:19 109:14,17 110:10 114:5,15 154:11 description 3:6,23 11:1 14:15 15:3 32:14 58:18 59:11 152 24 153:9 154:8 descriptions 3:20,21 42:21,22 design 6 14,14 7:4,5,11 10:6,8,10,21,22,25 22:18,21,24 23 4,7,12 23:13,16,18,20,21,21 23:24 24:2,8,15 34:18 34:23 40:24 58:14	59:18,23 65:21 68 24 84 20 98:11,13,17 99.8,13,22 100:1 132.2 149:4 designated 162:6 163:6 designed 84:7 designer 67:6,7 68:5 93 25 94:2 144:12 designer's 156:9 despite 40 12,14 destroyed 46:3,9 details 11:6 30:13 126:5 150:18 develop 65:17 66:18,23 67 4 89:11 developed 15:11 67:2 97.16 developing 10:17 82:16 development 147:2 diagram 54:14,15 58 10 122:21 diagrams 27:8 diary 133:8 Dickstein 2:8 19:23 differ 150:16 difference 42:3,6 99 24 150.21 151:3,7 157:11,14 different 33:15 53:5,8 59:17 84:23 102:13 102:13 109:6,11 111:21 digital 7:4,11 102:7 direct 3:3 4 5 26:17 81 21 136:12 directed 78:16 directly 29:16 41 3 65:8 disappointed 107:8,9 107:13,17,23,25 108:6 disclose 128:20 disclosed 127:12,15 128:15 132:9 149:14 discuss 17 21 71:9,10 71:13,16 152:10 discussed 25:18 40:21 61:4,17 71:8 107 7 113:13 126:7,10 127:18 155:20 156:25 discussing 19:21 80:19 125:24 126 1 129:20 discussion 71:22 122:13 discussions 20 11 126:21	disks 46:22,23 dissertation 38:17,20 38:21 39:2,5,6,9,11 39:22 40:1 97:9,12 98:2 99:5,9,18 100:5 100:11,20,21,23 dissipation 68:7 distinction 40:22 DISTRICT 1:1,1 DIVISION 1:2 document 11:9 29:1 54:12,13 56:3 70:16 86:25 87:5,21 91:11 101:16 106:21 109:5 110:6,25 111:2 112:2 121:17 123:9,12 128:3 142:3,5 144:17 147:7 149.20 150:3 152:24 153:24 155.8 155:11 documentation 55:21 56:4 140 15 documented 51:22 132:6 documents 20:21 27:17 43:10,23 46:10,16 122:19 136:1 159:24 160:7 doing 16:3,5,6 17:3,15 17:18 24 5 93:8,12 122:4 139:7,9 doubt 10:18 48:1,6,9 53:10 71 1,2 94:25 95:4 147 12 151:2,6 155:3 download 104:6 Dr 6:3,5,8,22 7 6,9,15 8:17,24,25 9:6 11:2 11:20 13.8,18,24 14:18,21 15:13 25:9 25:11,17 26:14,19 28:8,25 29:10,15,21 30:16,20 31:3,12 34.8 34:12 35 14,24 36:10 36:23 38 23 39:11,20 40:6 42:17,20 50:18 51:4 54:5 56:16,20,25 57:8,10 59:6,7,8,13 60:11 62:3,10,21 70:24 72:22 73:2 77:14 78.9 79:2,6 80:3,9 81:1,4,20 82:6 92:3 94:22,25 95:4,7 95:10,10,20,21 96:6 96:25 100:22 101:5 101:12 103:5,9
---	--	---	---	--

Page 4

121:13 125:21,23 126:11 127:9,12,16 128:2,16,20,25 129:6 129:8,12,20,24 130:3 130:7,12,23,25 131:4 132:10 136:15 137:13 138:3,3 140:1,5,8,9 140:12,16,20,23 141:13 145:14 152:9 152:12 153:21,25 154:25 155:3 156:7 156:12,16 157:18 draft 30:3 122:24 129:8 drawing 77:8,24,25 89:4,15 129:7 drawings 96:4 127:25 130:6,7,11,12 drawn 69:16 92:16 drew 69:15 duly 4:3 162:7	111:16,16 112:6 113:20,21 114:16 115:1,7,8,12,13,15,20 115:23 elements 76:22 77:1 109:7,8,11,12,12,23 109:25 110:9,16,21 111:10 114:3 116:13 117:7,13,17,20,24 118:5,10,13,16,18,20 118:22,24 119:3 120:20,23,25 121:3 123:16,20 124:7 126:1,7,10 142:20,23 143:1,4 else's 67:12 embody 149:4 EMC 1:4,9 employee 37:13 49:4 137:24 163:12,14 employment 49:6 engineering 6:25 8:25 65:5 entire 28:17 65:25 66:2 66:5 112:17 114:21 128:7,9,11 134:22 135:3,16 136:25 entirely 11:21 14:25 15:8 28:10,11 entitled 11:9 152:24 environment 51:23 84:15 equation 143:5 ERIC 2:7 errors 5:8 ESQUIRE 2:3,7 essentially 124:11,16 125:1 estimate 55:20 56:18 69:18 91:6 93:3 evidence 20:21 91:18 100:10 116:12,16,17 116:19 117:9,15 120:22 121:2 122:15 126:6,9 135:9 140:12 evolution 58:13 evolved 32:21 58:9 exact 106:25 127:10 exactly 30:2 31:7 37:8 51:3,4 55:18 89:3 158:23 Examination 3:3 4:5 examined 4:4 examining 29:1 56:3 101:16 109:5 110:25 112:2 123:9 128:3	142:5 149:20 155:11 example 10:8,10,17,21 10:23 15:3 33:10,11 44:13 54:23 62:21 68:7,14,19,20 94:5 96:12,14 111:15 125:12 126:15,19 examples 10:6 Excuse 108:17 exhibit 4:16,18,22 11:7 11:11,12,16,20 12:1 24:25 26:15 27:20,22 27:23,24 28:1,3,12,14 28:18,23 29:8,12 41:3 42:13,16,25 43:7,16 43:20 44:2,8,15 45:4 50:5 53:20,21 54:16 56:1,6 57:25 60:13,15 60:18,21,23 61:1,3,6 61:9,10,14,16,19,24 62:21 63:7,15 64:6,9 65:10,24 66:24 67:18 68:2,12 69:11,23 71:23 76:5,8,17,23 77:6,7 80:16,18,21,24 81:1,4,11,19,21,24 82:8,11 83:3 85:15,17 86:1,5 87:6,11,18,19 88:4,6,8,10,11,12,13 88:15,16,21 89:4,19 89:22 91:22,23,23 92:16 96:16,18 100:15,15,15 101:1,8 101:13,15 104:18,24 105:1,5,8,11,23 106:1 106:2,5,10,15,15,18 106:20 108:13 110:8 116:25,25 117:2,4,9 117:14,24 118:4 122:5,5,8 123:3,5,7 124:4,6,8 125:12,17 125:19,21,22 126:2 126:10,16 127:6,12 127:16,23 128:3,4,5,6 128:8,8,9,9,10,11 131:2 136:16 142:1,6 142:18 143:20 146:11 147:17 148:2 149:10 149:15,22 152:22 153:3,6,16 155:7,10 155:12,15 156:1 157:6 158:14,17,25 159:4,15 exhibits 3:5 27:16 28:7 28:9 61:22 62:2,11,13 63:5 77:8,17,20 78:2	85:24 87:22 91:24 96:4,7 97:2 100:17,18 103:12,17 104:13 105:18 116:21,23 117:10 122:16 124:9 125:17 128:1,13,18 exist 43:17,18 55:6 90:4 existed 55:5 137:7 expect 67:12 experience 131:19 expert 18:17 82:21,24 83:6 85:4,6,13,20 86:4,8,9 87:16 88:3 88:20 93:25 94:2 109:16 110:12 114:7 131:15,17 132:1 148:8,12,15,21,25 149:4,8,14 150:1 156:9 expertise 67:5,9,11,15 67:19,21,22 68:2,4,4 68:6,9,10,11,13,14 69:1,2,3,4,10 93:18 experts 149:2,3 Expires 163:24 explain 21:9 26:1 68:1 133:18 134:8,12 142:7 extensively 26:7 52:4,6 52:7 extent 134:16,18 external 94:9 e-mailed 106:22	125:12,21,22 file 104:8,8,10 filed 136:22 files 45:5 103:13,17 104:5,6 final 29:17 30:4,9,10,14 30:15,21 34:7,11 58:6 financially 163:15 find 15:19,22,24,25 16:3 26:25 34:3 53:21 121:24 finish 50:23,25 110:3 155:10 finished 27:18 28:5 31:17,20 32:6 36:11 37:18 87:9,25 106:16 123:9 142:4 147:3,7,7 153:1 finite 154:13 Fink 19:17 21:5 firm 19:22 20:2 first 4:3 14:6,10 19:11 19:18 22:20,23 23:3 35:3 41:11,13 76:7 77:4,6,7 91:4 92:13 93:1 106:20,21 121:9 124:24 129:8 131:21 149:23 five 22:11 112:13 119:13 fixed 146:21,22 flabbergasted 14:13 17:9 75:2 Floor 2:4 Florida 1:22,25 4:14 47:6 49:13,18,24 103:13 104:1 105:2,5 105:14,20 162:3 163:2 flow 126:19 127:3,5 fold 70:19 folder 70:3,5,6,7,9,14 70:17,18 folders 70:15 follows 4:4 follow-up 57:22 Foo 1:15 3:3,16,18,18 3:19 4:2,11,17 27:21 27:22,24,25,25 28:1 61:15 80:17 87:7 88:9,10,12,13,14,15 88:17 123:7 152:23 forgoing 163:5,8 forgot 124:2 forgotten 139:6 form 5:20 9:21 10:7
---	--	---	---	---

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 5

<p>12:5 15:5 22:25 38:1 39:14 53:9 66:20 75:14 85:8 91:17 94:14 95:23 98:12 101:11 114:10 131:16 133:12 134:7 135:6 135:11 137:19 138:24 139:22 141:1,17,23 145:15 146:17,24 147:10,14 154:8,10 158:15,18,21 former 107:11 forum 14:5 found 75:2,7 91:9 93:6 117 10 founder 63:22 64:2 four 22:11 83:15 112:13 119:10 149:11 frame 6:5 43:8 60:4 77:15,18 78:3,6 83:13 130:24 131:25 frames 135:21 framework 3:12 25:6 60:24 61:3 frame-based 3:13,15 3:17 40:23,25 42:3,7 42:11 136:4 FRANCISCO 1:2 free 145:24 full 4:9 fully 37:22,25 38:2,10 38:11,11 57:10 function 32:14 33:9,16 68:15 102:23 functional 156:13,17 156:19,23 157:7 158:7 functionality 32:25 33:2 funds 64 25 further 41:8 51:10 52:19 163:12</p> <hr/> <p>G</p> <p>gate 83:20,21,22,23,24 general 84:7 98 13 generator 76:21 143:4 143:5,5 GILROY 1 24 162:12 163:4,21 give 10:2 25:20 33:10 68:19 125:16,22 given 14:16 21:7,10 48 24 gives 130:19 go 44:1 59:22 85:15</p>	<p>92:24 121:18 139:20 goal 100:8 goes 66:9 going 18:15,24 19:3 34:22 39:12,23,25 52:4,8 107:18,24 121:21 good 4:7,8 9:14 graduate 7:24 8:1 9:1 22:2,12 31:19 35:14 37:12,19 38:24 39:7 44:7 48:22,25 49:3 64:5,8,10,11 72 12 78:8 108:3 graduated 39:19 graduation 75:22 grammar 62:22 graph 126:19 127:3,5 GRAPHICS 1:11 Greenville 13:19 14:1 155:18 guess 10:16 50:4 63:21 108:23 111:6 guide 7:23 guiding 7:25</p> <hr/> <p>H</p> <p>hand 69:11,13 77:8,24 77:25 116:17 122:19 127:2,25 129:7 132:6 162:8 handed 87 21 handing 4:16 11:7 27:15 60:13 61:1,14 80:16 87:5 106:14 141:25 152:22 155:7 handwriting 126:23,25 127:1,4 handwritten 96:4 100:16,18 116:20 121:19,22 124 8 129:15 130:6,7,11,12 hand-drawn 3:8,9,10 27:6,7 123:3 hand-sketched 54:13 54:15 58:13 122:19 122:20 159:25 happened 35:22,23 37:16 happy 8:11 hard 45 11,17,19 46:5 46:6,13,19 harder 68:24 hardware 109:15 110:11 114:6,16 head 8:8 16:14</p>	<p>headed 97:9 heard 134:14 help 9:19,23 87:2 143:16 helped 62:22 HENRY 2:3 heuristic 148:5,6,7,8,11 148:15,24 149:1,3,4 highly 127:17 high-level 3:20,21 156:8 home 50:3 honor 6:24 hour 18:8 hourly 18:2,7,20,22 hours 18:5,22 20:19,20 Howrey 2:4 17:25 18:12 19:8,17 20:12 21:8 132:13,16,19 Huens 22:15</p> <hr/> <p>I</p> <p>IC 67:5,7 68 4 102:14 102:15 ICC 36:5,7,12,15,18,24 37:2,5,9,14,19 47:23 48:13,14 53:7 63:15 63:19,22 71:21,25 74:14,23 75:5,12,23 107:14 136:7,9,12 137:23,25 138:3 139:1,4 142:12,14 145:2 152:13 idea 8:17,21 12:1,2,4,9 12:13,17,24,25 13:2,5 13:10 15:6,7,8,12 16:10,11,12,13,15,16 16:16,18,19,21 23:5 23:16,20,21 24:1,7 25:20,23,25 26:4 53:20 54:3,10,11,12 54:19,23 55:4,7,9,10 55:13,22 58 6,20,21 64:9 66:4,7 70:23 73:13 74:11,24 79:4 89:11 90:2,7,10,18 91:5,11 92 9,11 93:2 94:5 95:17 107:21 127:7 145:1,5,8 156:4 156:6,15 157:4 ideas 43:24 44:3 54:22 62:10,12,16,18,19 81:14,17 97:1,5 125:25 128:21 129:4 153:16,18,22 155:25 156:3,11 159:14,17</p>	<p>159:18,21,22,23 identification 102:25 identified 4 22 11:12 18:16 26:11 28:3 61:6,19 80:21 87:11 88:6 90:19 91:1 92:21 93:9,14,19,22 94:1,7,10 110:8 112:21 113:19 114:4 116:13,23 117:7,13 117:20,24 120:25 121:3 122:8 123:5,16 123:19 124:7 128:24 129:7,13 153:3 155 12 identify 27:4 28 21,23 59 24 94:12 105:4 112:12 118:9,13,16 118:18,20,22,24 119:1,3,4,7,10,13,16 119:19,22,25 120:3,6 120:9,12,15,18,20 121:19,22 124:21 128:14,19 158:16 implement 32:14 33:5 33 9 102:23 implemented 10:21,22 68:15 implied 41:9,16 improved 33:2 include 27:7 80:9 82:5 100:17 including 91:24 incorporate 83:6 incorporated 1:10 41:1 incorrect 98:1 99:6 indention 111:12,13 independent 84:8 85:2 independently 131:5 146:5,9 INDEX 3:5 indicate 92:15 112:20 113:2,10,14,16,25 indicated 26:14 27:1 29:19 97:8 99:7 112:5,6,16 113:5 indicates 63:7 146:20 indication 111 5 130:20 140 23 indirectly 60:7 95:20 individual 128:24 industry 64:13 influence 26:17 information 42:8 83:19 84:22,24,25 94:10 informed 124:6</p>	<p>initially 101:10 initiated 92:8 input 54:8 59 18 63:2,4 130:3 insight 26:3 inspiration 25:25 94:15 94:19,22 95:1,5,7,19 inspired 29:2,4,13 34:25 42:16,19 54:1 58:21,25 59:2,10 instance 1:16 149 24 instances 102:20 instant 101:20 instruct 18:24 41:24 instructor 25:11 153:14 154:25 155:4 Instruments 102:3 integrated 6:11,13 7-5 10:25 33-8 59:14 66:13 102:1,2,17,21 102:25 109:15,18 110:11 114:5,15 intellectual 47:12,20,24 48:7,10 intelligence 25:14 35:5 59:16 intend 148:11,15 intent 100:23 intention 63:24 intentionally 5:10,13 31:1,6 136:17 140:9 140:13,16,20,24 141:5 interchangeable 34:4 interest 37:20 interested 7:5 17:3,6 34:17 57 14,16 163:16 intermediate 154:10 International 1:12 63:8 Internet 14:5 15 20,22 15:24,25 155 23 intimately 73:20 introduced 23:16 introduction 150:12 introductory 157:22 invent 114:3,21 115:23 124:14,19 136:12 142:23 143:1 144:6 154:17 158:14,15,18 invented 66:3 107:25 110:1,17,22 114:14 114:22,25 115:1,4,7 115:12,15,18,20 116:5 118:5 124:7,11 124:16 125:2 131:25</p>
---	--	---	--	--

132:1,21 133:16 134:21 154 20 158:10 158:21 inventing 75:18 invention 86:11 116:12 116:20 117:10,16,19 120:22 121:2 125:6 132:16 144 4 inventions 133:10 inventor 54:25 141:11 141:20 152:19 159:7 159:10,21 inventorship 152:16 involve 22:17 23:23 involved 22:6 65:1 68:11 72:13 involving 23:15 100:24 issue 60:3 issued 81:24 item 116:1 149:23 150:4,9,9 items 40:20 116:1	kind 49:5 73:16,16 74:25 122:23 Kinko's 45:10 knew 52:8 73:16,18,19 108:10 know 12:20,22 13:1,13 13:16,25 14:25,25 15:3,4,5 16:8,10,18 18:22 19:18 22:13 24:6,23 27:17 30:2,18 30:19,24,25 31:1,2,7 31:7,25 33:21 40:8 41:8 50:7 51:2,4,7,24 52:4 53:4,7,14 55:1 55:18 57:8 59:2,17 63:3 64:3,4 68:11,17 69:8,9 70:21 71:13 72:5,10,14,19 73:16 78:10 79:19,21 86:20 87:8,24 89:9 90:6,9 91:4 92:5,12 93:1 94:21 95:10 96:24 100:8 102:5 103:16 104:16,17 106:16,25 110:21 114:14,25 118:12 122:20 125:9 125:19,20 128:23 130:22 136:21 138:15 139:6,7,17 140:11,14 141:2,4,6,22 142:4 144:13,14,15,24 145:6,7,11,12,16 152:14,18,20 153:1 154:16 155:10 knowledge 5:7,9 6:1,17 8:11 13:25 19:10,20 22:4 24:3 30:12 32:18 35:23 43:11 48:11,17 50:9 52:21 52:25 53:3 54:17 55:24 56:4 57:15 61:25 63:20 65:1,7,9 67:3,4 68:2,13 69:4 71:4 77:3,5 81:12,15 82:15,25 83:7,13,14 84:1 88:23 89:7 93:18,24 94:2 97:6,21 97:23,24 98:3,4,10,20 98:22,25 99:3,9,18 100:2,6 108:23 109:16 110:12 112:14 113:7,18,21 114:7,17 115:17 120:19 127:24 136:8,20,23 143:2 148:2 149:4 150:2 154:22 156:9	knowledge-based 3:14 3:16,19,20,22,23 24:23 35:6 40:2 53:18,19,22 56:5 60:9 60:15 70:12 71:22 72:5,19 76:10,15,16 86:19 87:1,17 89:11 92:10 93:9,14,23 94:11,15,20,23 95:1,5 97:13 99:14 100 8 131:6,7 147:18,20,24 148:3 154:20 156:4,7 158:22 Knowledge-bases 3:11 known 111:4 Kobayashi 6:3,5,8,22 7:6,9,15 8:17 9:6 11:2 13:8,18,24 14:18 14:21 15:13 25 9 30:16,20 31:3,12,15 35:14,24 36:10,23 38:23 39:11,20,23 40:6 50:18 51:4 54:5 56:16,20,25 60:11 62:3,10,21 63:21 64:1 70:24 72:22 73:2 74:19 77:14 78 9 79:2 80:9 81:1,4,20 82:6 92:3 94:22,25 95:4,7,10,21 96:6,25 100:22 101:5,12 103:5,9 121:11,13 125:21,23 126:11 127 9,12,16 128:2,16 128:20,25 129:6,8,12 129:20,24 130:7,12 130:23,25 131:4 132:10 136:15 137:13 138:3,3 140:1,5,8,9 140:12,16,20,23 141:13,19 142:1 145 14 153:21,25 154:2,25 155:3 157:18 Kobayashi's 11:20 12 25 25:17 79:23 80:3 130:3 152:9 156:7,12,16	54:25 58:18 59:11 Large 1:25 Larry 22:16 late 9:4 23:9 91:6 92:8 93:3 131:22 law 20:2 learn 14:1 learned 15:14,16 22 20 22 23 23:3 29:6 34:22 91:9 93 5 131:21 leave 5:10,13 75:23 81 4 86:16 140:5 leaves 33:21 led 12:22 26:3 left 40:9 51:11 107:11 136:15,21 137:6,7,14 140:1,4,8,9,13,16,20 140:24 141:5 145:14 152:16 LEON 162:3 163 2 Let's 43:19 44:1 level 11:1 levels 59:18 Libraries 3:11 library 59:22 112:7,21 113:6,20 line 37:16 83:19 109:3 109:13,16,17,19,20 109:22 110 9,12,13 111:15,16 112:6,7,9 112:22,25 113:6,7,20 113:22 114 6,7,9,16 115:2,8,9,12,13,16,21 115:23 116:1 lines 83 15 109:3 116:14 149:12 list 32:13,15 33:4 64:3 102:21 150:5,6 listed 13:1 142 20 144:11,17 146:22 literature 6:15 75:13 litigation 17:16,19,22 18:13 24:17 26:22 29:20 45:15 46:5,19 49:17 135 14 152:8 little 51 14 98:14 LLP 2:4 loaded 103:20 logic 3:7 6:14 7:4,11 10:11 11:3,9 83:20,21 150:5 long 35:19 73:23 90:6,9 90:13,24 145:13 150:18 longer 108:5	look 8:11 11:6 77:20 85:15 86:14 87:8,24 104:19,24 107:10 110:5,19 111:1,24 121:18 123:11 153:1 looking 88:2 121:25 122:25 loose 70:1,18 lost 70:15 lot 52:5 68:21,23 80:24 97:22 125:25 lunch 86:4 95:25 96:1
M				
machines 154:14 macro 156:12,16,22 157:7 158 7 magazines 59:25 maintain 104:3 making 42:9 105:1 manage 8:22 management 3:15,17 76:10,15 87:2 managing 3 12 8:9,9,14 25:6 40:24 60:24 manilla 70:6,7 manuscript 61 13,16 78:22 101 6,10 117:2 map 156:16 mapping 156:12,19,22 156:25 157:3,7,10,11 157:15,19 158:1,5,6 158:11 mark 110:2,23 111 3 117:23 121:17 122:4 123:3 marked 4:16 11:7 27:15 60:13 61:1,14 80:16 81 1 87:6 106:14 116:21 118 4 141:25 152:22 155 7 marked-up 122:5 marketable 32:1,5,5,9 36:20 37:19 38:9,25 39:3,13,19 50:19,24 51:15,19,21 52:12,17 144:23 marketed 31:23 Marriott 1 21 mask 11:1 master 34:14 35:7 40:1 master's 7:16 8:4,6 10:3,10,14 34:25 38:16 90:3,4,10,14,19 91:1,8 92:20 93:5,13 93:20 97:8,24 106:12				

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 7

material 29:5,24 80:24 materials 133:23 MATROX 1:10,11,11 1:12 matter 100:7 131:21 matters 17:22 mean 7:22,25 9:16 10:22 12:3 14:8 15:2 17:20 29:4 31:21,24 33:7 38:11 44:12 45:1,7 46:23 49:23 54:21 62:12,15 63:25 86:10 90:17,18 102:15 105:15,15 114:19,22 116:2 130 6,11 131:8 133:7 134 8,12 139:2 142:7 145:23 148:6,15,20 152:12 meaning 31:22 88:25 89:2 meanings 112:24 means 31:25 52:3 64:25 112:9 134:18 meant 32:5 51:21 97:18 137:24 mechanism 45:6 meet 6:22 56:21 84:16 84:19 90:25 memory 45:25 160:19 mention 23 19 100:19 mentioned 12:15 20:7 20:10 30:1 64 1 74:22 132:13,16 149:1 159:13 160:17 mentor 7:23 mere 130:5,10 met 71:6 90:21 Michael 22:15 152:2,3 152 6 middle 19 10 21:18 149:11 Middlewood 4:14 mind 69:10 122:10 mine 50:4 66:4 159:24 minute 124:23,23 minutes 16:19 missing 76:20,21,23 77:1 misstates 67:23 misunderstood 37:15 43 21,25 MJJ 1:4,9 model 135:15 module 3:12,14,16 24 24 31:18 32:11	53:14,15,16 60:16 66:9,10 67:3 72:9,14 76:16 87:1 88:5,22 89:5,13,17,18,21,25 90:2,7,10,15,20 91:5 91:10,11,15 92:6,8,11 92:16,21 93:2,6,13,19 94:6,7 135:15,19 138:7,10 modules 34:1,3 86:16 88:24 89:5 139:12 156:13,17,19,23 157:8 158 7 moment 11:10 27:17 87:8 106:15 110:19 142:3 152:25 155:9 monetary 64:25 money 107:24 month 14:9 months 146:22 147:4,8 Morin 2:8 morning 4:7,8 20:16 motive 136:19 moving 70 21 <hr/> <p style="text-align: center;">N</p> <hr/> N 3.1 name 4:9 13:15 19:15 24:21 30:22 32:19,20 54:3,5 63:24 74:9 75:10,12 79:9,23 80 3 82:16 86:20 107:12 108:16,18 144 25 145:4 153 12 named 144:1 names 139:4,6 nand 83:23 narrow 100 3 narrower 99:22 nature 99:20 NCR 59:8 necessary 32:13 33:9 53:16 need 9:19,23 45:24 90:20,22,25 91:10 92:21 93 6,9,14,18,19 93:22,24 94:1,6,10 97:14,19 111:7 needed 9:10 72:5 needs 26:6 72:4 Neptune 32:22,23,24 33:4 36:21 40:22,24 41:17 51 8 53:1 83:9 83:11,13,15 84:1,24 85:4,14,21 86:6 87:15 87:19 102:22,24	103:4,8 143 14 144:1 144:4,7,9,12,16,17,25 145:4,6,18,21 146:8 156:20,23 157:4,8,9 netless 76:21 143:4 network 39:10 networks 38 21 39:9 40:4,6 neural 38:21 39:9,10 40:4,5 never 32:8 52:5,9 65:22 74:11,22 125:5 132:4 132:6,9,13,16 134:5 134:10,14 135:3 Nevertheless 158:10 new 34:23 nice 40:13 nine 112:21 117:25 118:6,20 142:21 150:9 Nodding 8:8 16:14 non 99 19 nondisclosure 20:6 48:3 non-rule-based 138:18 NORTHERN 1:1 Nos 28 3 88:6 Notary 1:24 163:22 notebook 44 8,10,12 69:20,21,24 133:1,2 notes 24 16 27:1,4,6 28:7 29:19 34:6,10 41:3,4,9 45:23 58:13 100:16,18,21 106:13 116:17,20 121:19,22 121:25 124:3,8 129:5 129:15 159:25 163:7 notified 150:6 number 3:6 15:4 17:13 18:5 23:6 24:22 60:14 61:15 68:15 88:13 101:19,23 102:6,8,11 116 1 149:24 150:4,9,9 153:13 160:18 163:24 numbered 163:8 numbers 4:17 11:8 27:21,22,23,25 28:1 33:11 61:2 80:17 87:7 88:9,10,11,14,15 88:17 118:12 123:7 142:2 152:23 155:8 NW 2:8 <hr/> <p style="text-align: center;">O</p> <hr/> OATH 3:25 162:1	object 9:21 18:15 66:20 Objection 5:20 10:7 12:5 19:13 22 25 38:1 39:14 41 21 52:18 53:9 67 23 75:14 85:8 91:17 94:14 95:23 98:12 114 10 131:16 132:22 133:12 134:7 135:6 135:11 137:19 138:24 139:22 141:1,17,23 145:15 146:17,24 147:10,14 objective 30:8 occasions 160:18 offered 34:18 office 47:3,4 152:2 official 162:8 Oh 5:25 43:25 45:9 111:11 137:3,22 152 3 157:13 okay 11:14 20:19 27:19 28 5,13 32:4 36:22 37 17 39:22 43:25 50:6 76:6 82 9 85:18 85:18 86:13 96:5 101:16,22 104:25 105:20 106:9,17 109:1,5 110:25 111:2 111:11,14,17,19,21 111:23 112:4 123:9 134:16 138:1,1 142:5 142:5,19 143:22 147:19 151:14 153:2 155:11 157:2 161:3 old 16:12,13 oldest 104 4 Oliver 2:7 3:3 4,6,24 5:23 9:22 10 9 11:15 12 8 18:18,20,24 19:2 19 14 23:2 27 20 28 6 38:3 39 16 40:19 41:22,25 52:20 53:11 61:8,21 66 22 67:25 75:16 76:1,3 80:23 85:10 87:14 88:8,19 91:20 94:18 95:24 96:2 98:15 104:23 114 13 121:20 122:12,14,17 131:18 132:24 133 14 134:9 135:8,13 137:21 138:25 139 24 141:3 141:18,24 145:17 146:19 147:1,11,16 151:13 153 5 155:14	161:1 omitted 13:4,8,15,24 30:22 once 15:13 56:21 ones 69:7 111:25,25 112:1 116:14 117:23 123:12 130.13 one-to-one 157:16 operable 146 1,2 operations 156:12,16 156:22 157:7 158:7 optimize 32:15 optimum 68:17 order 92:12 orders 107:22 original 15:12 44:21,24 46:22,23 54:11 55:9 66:6 71:5 91:15 97:7 100:8,11 originally 39:25 43 20 originals 45:10,11,16 Oshinsky 2:8 output 33:12 66:8 102:24 103:3,4,7,8 outside 40:11 ownership 48:7 Ozeki 73:15 74:22 139:5,7 151:15,22 152:12,19 <hr/> <p style="text-align: center;">P</p> <hr/> page 3:2 25:3,4,5,5 29:1 30:2 43:24 44:14,15,16,19,25,25 45:2,3,4,5 50:7 53:21 54:16,20 55:10 56:6 57:25 58 2,10 63:7 66:6,8,14,16 76:7,7 76:24 77 2,6,7,7 81:21 82 10,14,18 83:3,9,12,14 85:17 86:5 87:18 88:4 89:10 96 18 101:15 102:12,20 103 3 113:22 125:22 126 16 127:23 128:4,4,5,6,8 128:12 142:18,21,24 143:25 144:3,6,11 145:5 146:11,20 148:1,1,4,14 149:10 149:11,22 150:4,11 157:23 158:2,6,16,17 pages 26:11,15 42:15 42:25 43:20 44:8 46:20 56:1 77:9,11,17 77:24 78:2,10,12 96:7
---	---	--	--	---

<p>104 19 105:1,8,11,20 105:22,22,23,23,25 106:2,3,5,6,8,10,11 127:25 128:14,18,24 128:24 129:7,13 143:20 163:8 paid 17:21 18:1 65:6 132:19 Palo 2:5 paper 11:2,5,6 12:4,7 12:10,12,14,16,23,24 13 3,3,4,6,6,9,10,10 13:21,24 14:17,20 15 14,17,19 24:19,21 25:6 60:9,10,11,16,18 60 21,22,24 61:3 62:19 63:11,14 64:6 65:16,21 72:22 75:8 78:16,21 79:5,24 80:2 80 6,15,18,25 81:13 81:24 82:6 134:4 150:23,24 151:4 153:24 154:6 papers 6:15 13:23 24:22,22 25:8 26:5,10 26:14,17 34:7,10 45 14 46:16 59:19,21 59:24 60:5 61:10,12 61:23 62:1,2,11 71:23 80 13 81:23 92:1,2,2 95 15 100:12,14 116:18 129:1,3,9,13 130:17 paragraph 111:12 148:4 150:12 157:22 157:23 158:2 parallel 3:7 10:11 11:3 11:10 paraphrase 15:1,2 Parkway 1:22 parser 67:2 82:16 86:9 86:11 87:15 88:5,21 89:5,14 135:1,19 136:3 part 14:17,20 21:18 22:1 25:24 27 13 28:11 29:8,12 35:23 36:8 43:11 55:20 58:10 63:23 72:14 76:19,20 86:11 97:17 97:24 98:18,20 106:11,12 134:23,25 parted 35:16,17 39:11 101:7 103:5,9 Partially 63:18 particular 6:12 29:7</p>	<p>32:14 33:9,13 58:2 60:2,3 68:14 83:20 84:25 91:22 102:23 particularly 6:14 7:4 109:3 parties 17:16,19 163:13 163:14 parts 17:13 28:18,21,23 103:1 135 17,18 patent 3:21 17:5,5,7,10 17:13 55:13,16 107:10,12,19 108:1 108:24 110:20 117:9 117:20 121:10,12,23 121:24 122:6 136:16 136:22 140 1,5,10,13 140:16,20,24 141:5 141:21 145:12 152:16 159:1,5,8,11,18,21,22 159:23 patented 107:15 131:2 132:4 141:14 158:25 159:4 patents 108:15,18,20 payment 21:10 Peoples 59:6,7,8,13 pen 111:21,22 pending 121:10 people 132:20 139:4 perform 51:23 81:11 146:3 performance 68:18 performed 49:9 83:18 period 6:18 114:20,21 115:18,19,24 116:5 133:15 person 12:6 19:15 20:1 20:5,25 40:13 74:17 74:25 77:13 81:12 125:9 144 21 151:19 personal 50:2 106:13 personally 162:6 phone 151:18 phonetic 22:15 139:5 phrase 53:22,25 148 5 Ph.D 35:11 38:18,20,24 39:17 40:1 99:18 108:2 pick 68:17 picked 112:1 pinpoint 116:10 place 1:21 50:1 152:11 163:6 placed 62:7 placement 66:9 139:10 139:11</p>	<p>Plaintiff 1:4,8 play 15:10 played 15:9 please 4:9 11:6,11 89:20 90:8 104:24 110:3,7,24 117:12 122:2 142:17 plotted 44:21 point 31:11 114:22,24 116:7,8 149 8 160:3,4 160:13 pointed 149:18 pointing 91:21 policy 49:8 polished 101:11 ported 84:15 portion 66:18,23 67:1 72:24 85:20 portions 105:4 positively 127:19 possession 56:6 possibility 157:17 possible 15:1 30:23 49:11,12,15 50:12,13 52:10,14,15,19 72:16 78:12 81:16 82:5 95:16,19 97:4 115:1,4 130:25 131:4,10 138:14,17,20 141:9 141:13,19 142:16 144:16,19,22 148:19 148:20,23,24 possibly 12:19 13:12 22:16 28:20 30:17 91:23 102:4 104:12 104:15 130:4 134:4 136:24 143:4 148 10 148:17 155:22,24 160:6 potential 79:7,12 100:20 power 68:7 practice 134:5 145:9 preamble 111:4 predominant 69:7 preliminary 50:16 preparation 20:17,23 prepare 4:25 5:2 28:14 28:16 43:7,14,19 44:2 44:16 prepared 5:3 28:19,24 29:9,13 42:25 43:10 43:22 44:3 preparing 20:14 30 21 prerogative 64:3 present 29:24</p>	<p>presentation 13:14,16 14:2,25 15:14 presented 13:18 29:17 31:8 155:17 pretty 6:16 40:8 98:13 previous 14:3 previously 106:14 141:25 primarily 77:25 primary 12:4 print 45:5 46:19,21 printed 44:25 45:1,4 105 20 printing 103:12 105:17 printout 44:18,20,21 104 22 printouts 49:18 prior 43:16 55:7 67:23 78:24 90:4 153 19 privilege 41:21 probable 127:17 probably 5:3 23:5 35:9 51:1 54:1 70:10,12,15 86:4 90:2 problem 29:7 58:15,17 58:24 59:11 proceedings 163:5,10 process 10:25 35:9 70:20 89:8,24 98:19 98:21 100:1 101:6 produce 24 16,19 26:18,21 33:12 39:13 45:3 70:14 86:22 produced 27 1 29:20 34:11 45:15 46:4,18 49:17 50:10 91:18,21 102 2 103:12 105:17 105:19 122:15 124:3 135 14,17,25 136:3 159:25 160:8 producing 43:23 product 18:16,18 19:13 31:18,20 32:5,6,10,11 34:7,11 36:11,14,17 36:19,20,24 37:4,12 37:13,18 38:9,25 39:3 39:13,19 50:19,22 51:7,18 52:22 53:2 58:6 107:24 108:7 145:2 production 4:17 11:8 27:21,22,23,25 28 1 60:14 61:2,15 80:17 87 6 88:9,10,11,13,14 88:15,16 123:7 142:2 152 23 155:8</p>	<p>Professional 163:4 professor 8:23 22:14 24:13 26:16 28:10 29:3,18,25 34:18 35:1 35:4 40:7 41:4 59:4,8 59:14 94:17 professors 22:16 program 15:11 31:22 32:17,19,20 40:21 51:22 52:11,16,19 53:1,5,8 85:14,21,25 86:6,14,17,18,20 87:15 89:3 92:17 102:22 103:8,24 143:14,25 144:4,7,16 144:18,21,23 145:1,5 145:18,21 146:8 156:20,23 157:4,8,9 programmable 3:7 10:11 11:3,9 programs 103:25 116:18,23 160:1 progress 92:17 project 3:23 24:9,11,13 24:14,16 25:18 26:10 26:13,19 27:13 28:8 28:25 29:9,15,21 30:3 30:5,6,7 34:8,12 57:20,23 58:1,7,25 64:18 152:24 153:9 projects 5:18 64:12,15 proof 117:19 141:5,6,7 propagation 68:8 properly 160 15 property 47:12,12,21 47:24 48:7,10 49 9,14 proposal 153 9 propose 90:21 proposed 109:17 prototype 65:20,22,23 134:10,13,15,17,18 134:21 135:9 139:21 145:10,13 prove 98:8 provide 8:17 10:6 26:2 63:1,4 81:14 96:6,12 153:21 provided 20:22 95:20 95:21 97:4 Public 1:24 163:22 publication 79 7,9,12 79:12 101:6 publications 5:11,14 26:8 30:21 38:15 62:8 100:19 116:24 116:25 117 1,3,5</p>
---	--	--	---	---

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 9

<p>publish 12:24 60:5,8 78:16 79:5 150 23,24 published 13:5,9,21 16:11 31:8,18,20,24 32:1,2 36:11 71:23 72:22 78:23 79 25 80:6,19 101:1,4 129:1 129 4 130:18 purposely 107:11 purposes 109:10 111:9 pursuant 34:11 pursue 34:24 35:10 40:9 put 18:6 50:18 63:11,22 63:24 64:3 67:22 68:2 123:13 124:10 p.m 1:20 161:5</p> <hr/> <p>Q</p> <p>question 5:12 6:6 7:8 18:25 19:3 22 8 31:9 36:22 38:7 39 15 42:1 43:22,25 48:5 67:24 68:16 73:4 75:6 78:1 82:12 83:10 84:18 85 9,12 85:18 87:13 88:1,3,18 89:20 90:8,12,23 91:3 93:11 94:3 95 3,8,9 101 18 110:9 111:9 115:10,14 117:12 118 3,8,9 123:18 124 2 126:8 132:18 138 2 140:2 141:2 152:20 157:24 160:20 160:21 questioned 75:7 questions 109:6 160:14 160 23,24 161:1,3 quit 121:12 quite 32:8 91:2 118:2 123:22 143:19 148:19 148:20</p> <hr/> <p>R</p> <p>range 118:12 rate 18 2,7,20,22 read 26:5 59:20,21,23 59:25 92:25 112:2 161 4 Reading 161:6 ready 31:22 153:2 real 51:23 140 19,23 realize 73:5 107:10 123:2 124:9 realized 121:15</p>	<p>really 31:7 57:14 reason 21:20 31 15 33:18 34:16 40:5 42:23 57:5 62:6 78:7 82:4 129:3,11 131:12 139:25 140 3,7 151:17 155 3 159:23 160:2 reasons 160:5 recall 10:13,16 12:21 13:22 29:16 47:22,25 48:3,23 49:5 51 3 54:7,7,9 60 3 74:13 74:21 75:15 79:10,11 79:13,14,18,20 80:1 80:14 81:18 82:3,7 91:13 92:12,14,22 94:24 95:14,18,22 97:3 100:25 103:18 107:7 108:12 110:18 114:11 115:3,6,7,11 115:15 125:18,24,24 126:1,5 127:10 129:10 132:23 133:13 135:7,12,23 139:23 146:18,25 147:5,9,15 150:14,18 151:9,25 153:15,23 154:24 155:2,16 160:17,20 160:22,23 receive 75:17 received 94:10 recess 40:18 76:2 96:1 121:7 151:12 recited 153:24 recognize 4:18 106 18 142:6,8,20 153:6 155:15 recollect 139:18 recollecting 121:15 recollection 10:15 13:17 15:21 20:4 56:19 58:5 59:3 73:25 74:3 87:3 92:7 93:21 101:9 107:1 117:6 124 1 125:20 131:22 151:21 155:6 160:8 record 4:10,23 11:13 27:20 28:4 40:19 56:24 61:7,20 76:4 80:22 87:12 88:7,8 96:3 104:18,20 110:7 112:3 116 19 122:6,9 122:13 123:6,15 136:2 151:14 153:4</p>	<p>155:13 160:11 163 9 recruited 6:23 reduced 134:5 145:9 refer 25 8 111:10 148:12,24 reference 19:21 80:12 83:9,11 109 10 147:20,23 148:3 150:11,20 referenced 81:23 82:17 referred 85:16 referring 5:22 10:8 11:17 12:11 16:21 19:22,25 23:12 24:25 25:3,4 28:17 29:23 36:19 39:23 67:17,20 71:12 86:1,23 96:3,16 96:17 109:6 156:24 157:21,22 refers 158:2,7 refine 52:19 reflect 34 7,11 56:1 144:4 reflected 54:19 62:13 156:1 reflects 12:13 55 22 refresh 10:15 45:24 87:3 160:8 refuse 39:12 regard 9:19,23 regarding 11:3 17:5 29:20 48:6,10 55:22 91:15 Registered 163:4 relate 127:8 related 29:24 79:3 relational 8:10,15,21 relative 163:12,13 relevant 9:14,16 relied 120:22 149:2 rely 149:3 relying 117:15,19 120:21 121:1,2 remaining 106:2,5 remember 6 4,7 7:13 9:2 16 23 19:23 20:8 22:3,6,9 30:10,13 35:13,17 81:17 86:21 106:24 143:19 rename 104:5 repeat 5 12 87:13 88:18 149:24 rephrase 141:16 report 26:20,21,25 29:17 30:1,4,9,11,14 30:16,21</p>	<p>REPORTED 1:24 Reporter 3:25 163:1,4 representation 42:8 representative 103:4,7 represented 21:12 101:20,23 102:8,11 102 19 REPRESENTING 2:2 2:6 require 24:13 52:5 required 79:6 requirement 31:17 35:14,15 36:11 37 18 37:24 38:8 50 18 51 5 requiring 36:14,17,23 38:24 39:18 research 6:2,9,10,21 7:20 17:3 21:21,24,25 22:7,10,17 23:21 36:1 36 2 40:10 researched 26:7 37:22 37:25 38:2,10,11,12 researcher 6:8 researchers 24:4 residence 4:12 resources 49:9 65:11 133 17,18,21,23 136:7 respect 6:12 9:6 10:19 10:20 11:22 21:21 22 10 23:10,11 63 17 117:21 118:6 response 10:16 110:8 restate 44:1 restrict 38:23 result 13:21 26:9,13,18 retain 21:19 44:18 retained 47:15 49:13 retainer 21:7,9 retrieved 70:16 reveal 20:11 review 11:11 17:7,21 27 17 106:15 107:2 142:3 155:10 reviewed 20:21 109:2 revise 52:16 revised 51:10,16,20 52:11 58:12 144:22 revision 103:16,18,19 103:23 104:3,4,9,11 104:13 revisions 126:12,14 Ricoh 1:5,7,16 2:6 right 9:25 37:9 46:13 47 13 48:2 49:19</p>	<p>52:2,14,23 57:20 65 3 66:3,5 71:6 72:25 73:6,21 74:14,16 75 9 75:12,13,18,20 76:11 78:25 79:15 81:20 85:3 89:3 92:21 95:11,15 107:15,21 108:11 121:25 124:24 125:6 127 4 128:12 130:8 136:1 137:1,8 137:15 138.8 145:10 145:14 153:25 154:3 154:21 155:1,23 ripple 68 21 risk 108:3 River 74:9 role 15:9,10 25:17 139:10 Ronald 8:23 roommates 73:21,23 73:24 routing 66 9 76:21 139:10,11 152 11 row 146:12 151:22 RPR 1:24 163:21 rule 82:17,17,18 148:7 149:2 rules 68:25 82:19,21,22 82:24 83:2,3,4,6 85:4 85:6,13,20,23 86:4,8 86:9,19 87:16 88:3,20 148:5,6,7,8,9,11,12 148:15,16,21,24,25 149:1,3,4,9,13,14,16 149:21 150:1,3,8 rule-based 21:22,25 22:7,10,18,20,23 23:4 23:13,17,19,20,22,23 24:2,8,10 25:13,21 26:4 34:15,19,21 35:5 35:10 42:4,9,10,21 54:2 57:11,16,19 59:15 71 16 132:2</p> <hr/> <p>S</p> <p>S 150:6 safe 68:23 SAN 1 2 SARAH 1:24 162:12 163:4,21 Saturn 82:10,13,15 save 45:22,23 saved 45:19 saw 14:10,12 17:9 155:23 saying 57:25 81:10</p>
---	---	--	--	--

<p>98:24 104:10,21 says 83:14 146:12 schedule 146:22 scheduling 38:22 schematics 129:4 scratched 126:18 127:5 scratches 126:15 scratching 127:2 SDF 154:6,7,9,10 seal 162:8 search 6:15 searches 16:3,5 searching 16:20 search's 16:6 second 41:2,12 121:14 157:23 158:1,1 see 10:14 14:6 16:10 58:9,12 83:16 101:21 106:20 107:25 109:23 111:14 122:22 123:18 126:18 146:13 148:5 150:12 seeing 16:23 seek 107:18 seen 14:4 142:9 select 100:2,6 selected 33:4 101:20 102:22 selecting 109:20 110:13 114:8 115:20 147:21 selection 3:12,13 16:22 16:24 17:3 24:24 31:18 39:24 40:1,3,25 53:14,15 60:10,16 67:3 72:9 76:16 78:17,19 79:17 80:2,7 88:22 89:5,14,18,21 90:1,2,7,10,15,20 91:10,12,15 92:17 93:6,13,19 97:10,15 97:16,20,22 98:18,23 98:25 99:2,4,21 100:9 100:24 112:9,24 144:9 146:3 157:9,12 157:15,16,20 158:3,8 selector 3:14,16 32:11 32:12 36:21 53:8 72:14 87:1 88:5 91:5 92:6,8,11,21 93:2 94:6,7 98:16 135:2,15 135:19 136:3 138:7 138:10,16,21 143:3 143:23 144:3,6 146:13,16,21 147:3,6 selects 32:13 self-study 154:23</p>	<p>selling 107:24 semesters 6:1 SEMICONDUCTOR 1:10 sentence 158:1,6,11 separate 23:22 111:7 series 87:22 102:6,25 seriously 53:10 services 18:13 set 109:13,14 110:10 114:5,15 156:12,16 157:7 158:6 seven 25:4,5 26:11,15 112:17 117:25 118:6 118:18 150:9 Shapiro 2:8 19:23 20:1 106:22 shared 128:21 shop 38:22 Short 40:18 76:2 121:7 151:12 shorthand 163:7 show 56:7,9,12,14,22 57:2,7 126:6,9 155:20 showed 30:15 56:10,15 74:11 127:22 128:2 128:25 129:6,8,12 130:7,12,14,22 showing 56:19,24 shown 66:24 77:11,13 122:15 127:17 142:23 145:4 159:14 sign 20:6 39:4 47:19,23 48:11,13,19,21 161:4 signed 39:6 48:2,6,10 significant 5:18 34:20 signing 48:3,23 161:6 silicon 3:19,20 53:16,17 53:18,23 56:5 58:19 59:12 87:17 89:12 92:10 93:9,23 94:11 94:16,20 95:1,5 97:13 147:24 154:17,20 silicone 53:19 76:11 93:14 similar 24:5 93:12 Similarly 94:8 Simon 1 15:3 3:4,2,11 simple 41:23 simply 118:9 simultaneously 29:14 69:13 131:1,5 sir 5:1,15,22 7:17 8:5 9:8 10:1 11:4,17,19 14:11 15:15 16:4 17:8,23 19:24 20:13</p>	<p>21:6,11,13,23 22:19 23:1,25 24:18,20 25:2 25:22 26:23 27:5,10 28:15 33:6,23 36:4,6 39:10 42:5,18 43:2,6 44:11,17,24 45:13,18 46:14,17 47:1,5,8,18 48:15 49:20 50:1,21 51:9 53:24 55:12,14 55:17 56:8,13 57:1,3 57:9,12 60:12,17,20 61:5,11,18 62:4,9 63:6 64:7,10,17 65:5 65:12,19,21 66:2,15 66:21,25 67:8,10,14 67:24 69:12,14,25 70:2,4,25 71:5 72:2 73:4,7 74:13 75:15 77:10 79:8 80:11 81:15 82:7 83:1,8 84:3,5 85:22 86:7,24 89:16,24 90:5,12 91:19 92:4,19 103:2 103:15 104:2 105:3,7 106:19 107:3,6 108:19,21 109:24 110:15 112:8,15,19 112:23 113:24 114:2 114:24 115:3 116:15 118:15,17,19,21,23 118:25 123:10,21 124:5 125:4,15 126:24 129:18 133:9 133:13 135:12 136:11 136:14 139:23 142:10 143:9,13,15,17 144:8 144:10,13 147:5,15 150:13,22 151:25 152:14,21 153:7,15 153:17,23 154:24 155:16 156:2,10 158:9,12,20,23 159:6 159:16 160:16,25 six 109:11 112:16,17 117:25 118:6,16 147:3 149:24 sketch 3:8,9,10 30:4 44:13 50:9 54:18 55:19 56:7,12 58:6,8 66:17 69:11,13,23 92:16 126:13 sketched 53:20 60:23 89:4,9,14 sketches 27:6,7 69:21 125:16 132:7 skills 62:23</p>	<p>slides 106:12 slow 68:22 small 72:24 smallest 33:24,25 solution 90:21 solve 29:7 58:15,17 59:10 somebody 31:12 67:12 somewhat 57:24 79:3 sorry 27:25 46:24 47:6 50:5 58:23 68:25 76:14,14 77:4 83:22 85:19 91:2,25 106:7 117:18 118:2 119:2 142:1 148:1 149:11 153:13 source 27:9,11,12 46:4 46:6,11,12,18 47:11 47:13 49:16,22 83:15 83:18 86:2,3,22,25 87:20,23 91:24 94:12 94:25 97:1 103:11 135:14 136:3 South 5:17 13:19 14:1 22:2 35:19,25 36:3 37:5 47:20 48:22 49:1,8,10,14 133:17 133:24 155:18 space 68:21,23 speak 20:23 21:1,5 151:24 152:1,5,7 specialties 7:1 specialty 7:3 specific 33:22 72:8 83:25 84:2,4,17,21 98:14 99:19,23,25 116:10 specifically 40:9 159:25 specification 146:15,21 specifications 3:22 156:8 specified 109:21 121:17 specify 8:12 specifying 109:19 speculation 52:18 spend 20:14 spent 20:19 spoke 14:2 21:2 151:15 151:16,22 152:5 sponsor 63:23,25 64:4 sponsored 64:12,16,19 sponsors 64:21 sponsorship 64:20,24 64:25 65:6 spring 51:6 152:25 153:10</p>	<p>stage 32:8 start 7:18 19:7 89:25 112:25 137:20,22 started 10:24 16:15 19:9 32:20 132:12,15 138:2 starting 6:2 74:2,3 110:9,11,13 111:3 112:7 149:12,23 starts 109:15 112:5 142:18 148:5 state 1:24 4:9,12 47:6 49:13,18,24 50:24 103:13 104:1 105:2,6 105:14,21 154:8,11 154:13 162:3 163:2 statement 29:23 statements 149:12,25 STATES 1:1 stating 140:19 stay 35:19 step 43:19 137:23 Stephens 22:16 stipend 49:2 65:2,4 storage 45:6 store 50:1 83:19 84:22 84:25 stored 46:25 47:2 84:24 109:21 110:14 114:8 115:20 storing 42:8 109:13,14 109:16 110:10,12 113:19,21 114:4,6,14 Street 2:8 strike 13:20 23:15 26:9 32:4 70:22 104:9 114:25 119:2,4 structure 33:20,20 Stuart 143:18 144:11 144:22 student 6:2,7 7:20 9:1 22:2 48:22,25 49:3 64:5,8,10,11 72:12 78:9 108:2,5 students 6:24 139:18 Su 2:3 5:20 9:21 10:7 12:5 18:15,19,21 19:1 19:13 21:2,14,17 22:25 38:1 39:14 41:21,24 52:18 53:9 66:20 67:23 75:14 85:8 91:17 94:14 95:23 98:12 104:18 114:10 131:16 132:22 133:12 134:7 135:6 135:11 137:19 138:24</p>
--	---	---	--	---

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 11

<p>139:22 141:1,17,23 145 15 146:17,24 147:10,14 161:3 subfunction 150:5 subject 131:21 submitted 153:10 submitting 101:6 subpoenaed 21:20 subsequent 30:4 32:21 107.4 subsequently 34:21 35:3,16 108:4 sufficient 98:5,11 sufficiently 99:8 supervision 163:8 supported 63:8,15,19 sure 12:20 30:18,19,24 30:25 31:2 40:8 44:5 52:9 69:17 71:3 72:21 78:6,7 91:7 93:4 104:16,17,20 109.9 118:13 122:12 125:19 151:11 155:2 surprised 48.18,20 51.13,14,16,19 switch 40:5 108.9 switched 31:11 sworn 4:3 162.7 synonymous 148:8 SYNOPSIS 1:3 2:2 system 3.11,15,17 8:10 8:21 21:25 22:7,10 23:22,23 24:10,24 25:21 35:2 40.3,24,25 42:4,4,7,8,9,10 55:2 55.9,22 56:2 57:11,19 59:18 60:6,15,22 61.10,23 64:18 65.10 65:17,24,25 66:2,5,19 66:24 67:16,17,18,22 67.22 70:13,22,23 72:15,17,24 73:6,18 74.12,23 75:3,4,9,13 75:18,24 76:10,15,18 79.19 85:7,11,14,16 85.21 87:2 88:4,20 89.9 97:17,20 100:9 104:7 107:15 108:11 109:16 110:12 114:7 131:6,7 132:1,2,21 133:11,16,22 134:6 134:11,21,23 135:3 135:16,21 136:6,10 136:13 137:1,4,11,14 137:18 138:4,10,13 138:19,22 139:13,15</p>	<p>139:21 147:18 148:3 150:11,14,16,17 151:3,4,7,8 152.13 156:7 158.22 systems 1:11 21:22 22:18,21,24 23:4,13 23:17,20 24:2,8 26:4 34:15,22 35:3,6,10 54:2 57:16 59:15 71:16,22 99:14 156:8</p> <hr/> <p style="text-align: center;">T</p> <p>table 147:2 take 8:2,3 11:10 23:8 23:10,16 27:16 29:6 40:16 76:1,14 86:14 87:7,23 95:24 104:24 106:15 110:5,19 111:1,24 121:5 122:10 123:11 142:3 151:10 152:25 155:9 Takefuji 79:6 154:3 Takefuji's 79.22 taken 14:15 16:11 69:19 153:19 163:5 takes 33:11 68:21,23 talk 13:18,20,20 talked 16:18 talking 12:6 16:17,20 18:2 20:16 39:20 43:8,23 44:20 45:9 46:9,10,11 58:2 65:25 70:20 71:11 77:15,16 99:25 126.14,15 129:24 151:18 157:10 157:16 159:12 talks 17.14 154:6 Tallahassee 1:22 4:14 task 6:10 30:8 32:7,8 72:8 99:23 100:1,3 taught 22:13,14 24:12 29:5,6 59:13,15 teach 7:6,9 teaches 8.25 TECH 1:12 technical 6:15 62:23 63:1,4 technically 96:21 technology 33:22 83:25 84:1,4,8,17,20,23 85:1,2 technology-specific 83:24 tell 73:12,15 100:22 125:8,11 148:18 telling 8:2 132:20</p>	<p>ten 113:3 119:19 tendering 87:5,21 110:6 111:2 123.12 tenured 40:6 term 62:17 82:10,13,17 83:11 101:19 109.7 134:14 148:11,15,21 148:24 157:25 158:5 Terminated 1:20 terms 9:10 101:17 152:12 test 52:4,6,7 tested 51:23,25 52:2,3 52:3 testified 4:4 18:21 132:25 testifying 18.16 testimony 67:23 70:24 92:18 96:25 123.23 129:21,25 145:18,21 160:11 testing 52:11 Texas 102:2 Thank 122:3 theory 98.8,9 thesis 8:4,6,18 9:7 10:3 34:14,25 35:7 90:3,4 90:7,11,14,19 91:1,9 92:20 93:5,13,20 94:7 94:9 97.8,25 106:12 thing 23.18 24:5 41:17 126:12 157:15 things 91:9 93:5 97:22 think 6:16 34:19 37.15 40:13 43:21,21 97:14 126:12 thought 37.21 150:21 151:6 thoughts 41:8 121:15 three 6:1 20:19,20 22:14 73:25 112:13 116:1 119:7 149:11 150:4 thumbs 148:7 149:2 time 1:19 6.4,18,23 7:1 9:15,17 12.23 14:10 20:14 23:3 25:13 28:19 34:16 39.9,18 40:7 43:8 44:6 45:7 51:18 52:5,5 55:17 56:11 58:16 59:9,22 60:4 64:5 68:12 69:19 70:17,19 72:11 72:12 73:3 75:21 76:23 77:2,14,15,18 78:3,6,8,24 89:14,18</p>	<p>89:22 90:6,13,14,24 91:8 93:4 97:14 103:5,9 107:2 108.2 114.9,12,20 115:19 115:24 118:11 125:10 127:7 130:24 131:6 131:15,20,24 132:12 132:15 135:24 136:9 142:12,14 146:5,8 150:19 151:15,22 158:4 160:18,19,23 161:2 163:6 timetable 147:12 title 8:7,13 12:12,13 30.7 54:8 56.5 99:14 143.23 153:12 titled 25:6 86:25 today 5:6 20:15 21:12 59:24 91:14 155:21 today's 18:9 20:17,24 told 35:13,18 40:8 107:8 125:5 130:13 top 25:5 58:9 92:13 101:17,20 143:25 topic 9:12,13,14,14,16 39.12,17 40:10 98.24 99.2,4,7,9,13,15 topics 71:8 Toro 139:5 totally 63:16 145:24 Tour 151:22 trade 155:20 trade-off 68:16 traffic 82:20 transistor 33.25 transistors 59:14 transitions 154:11 translate 58:18 translated 163:7 translating 3.22 59:11 156:8 translator 143.3 transpired 108:9 tree 33:19,20 trend 34:23 true 16:25 29:22 45:14 52.1,1 63:12,13 84:9 93.7 99:6 130:1 141:20 163.9 truly 141:9,13 try 15:13 16:3 28:22 47:11 53:21 84:11 trying 58:15,17 108:6 137:13 138.4 turn 28.12 42:13 76:4 82:8 101:15 108:13</p>	<p>142:17 143:20 146:11 147:17 Turning 50:5 turns 48:18 twice 56:21 two 6:1 22:14 23:22 24:22 26:17 33:11 35:4 40:20,23 73:25 81:19 112:12 119:5 121:8 146:22 two-bedroom 74:5 type 21:24 27:11 33:13 48:24 67:15 68:1,6,12 70:5 74:4 83:2,21 103:4,8 111:10,12 types 84:23 typically 102:6 126:21</p> <hr/> <p style="text-align: center;">U</p> <p>Uh-huh 139.16 143:24 144:2 149:7 ultimately 131:1 145:9 undergraduate 5:16,24 5:25 6:20 7:7,10,21 underlying 12:1,2,9 underneath 123.14 undersigned 162:6 understand 49:3,7 67:24 90.12 91:2 94:3 109:7 118:2,8 132:18 160:15 understanding 20:9 49:5 62:17 understood 66:15,16 unethical 31:16 Unfortunately 46:3 unique 26:2,4 150:25 UNITED 1:1 universities 24.4 university 2:4 5:17 22:2 35:19,25 36:3 37:5 47:6,7,20,21 48:21,25 49:4,7,10,13 49:14,19,25 64:13 65:11,18 79:6 103:14 104:1 105:2,6,14,21 133:16,19,24 unofficial 31:16 unpublished 61:13,16 80:25 117:2 update 5:6 urgent 122:11 use 22:17 24:14,15 34:15 55.1,6 65:11,13 66:17 67:12 75:23 111:21 148:14 156.19</p>
--	--	---	--	--

157:25 158:21 user 150:6 user's 84:20 usually 128:21 utilize 133.16 134:1 156:23 157:4 utilizes 42:10 utilizing 98:25 99:3 133:23 136:7 157:8	well-defined 30:6 went 45:9 72:23 weren't 37:1 107:13,17 West 74:10 we're 34:6 77:16 we've 18:16 80:18 103:11 whatsoever 48:16 52:21,25 96:7 wish 160:12 withdraw 79:7 withdrawn 79:14,21,22 witness 3:2 4:3 11:14 28:13 41:24 42:14 76:6 82 9 87:10 88:18 104:21 106 17 121:8 122:10 151.11 153:2 162:6,8 word 15:5 100:21 words 10:24 39:2 work 3:16,18,18,19 5:16 6:16 11:5,16,17 11:18,20,23 12:16 13:19 14:16 17:14,15 17:18,20 18:4,15,18 19:13 22:1 31:8 34:20 35:18 36:5,7 37:22,24 38 9,14,16 46:2 47.4,10 49:8 50:16 51:24 52:8 56:23 63:8,15 64:11 64:15,24 71:5,10,11 71:11,14,15,21 72:13 72:23 78:19 79:1 81:7 84.9,10 85:2 88:24,25 91 15 97:7 108:11 131:1 133:19 139:1,3 141:10,10,10 141:14,14 145:9 150:25 152:9 worked 6:2 53:15 71:25 74:14 95:10,13 139:4 working 7:16 12:23 17:24 19:7 31:9 35:24 36:1,12 39:8,17 53:13 65:20 72:10 73:5,17 74:23 75:3,4 89:13,17,21 107.14 107:14 121:11,13 131:1,5,7,8 132:12,15 134:10,12,14,16 136:9 137:17,18,20 137:22,23,24 138:2,7 138:9 139:17,19 142:12,14 145:10,13	152:12 works 121:11 134:18 wouldn't 57:10,13,22 98:10,20 100:3 147.3 150:20 write 26:14 30:9 34:14 72:24 86:17 97.12 98:2 100:14 143:14 146:15 writing 6:15 10:4 12:4 13:3,6,10 50:23,25 62:21,23 92:5 97:9 147.7 writings 44:2 written 26:11 27:12 86:18 101:10 140:15 wrong 110:8 wrote 12:6 64:6 72:4 76:23 81:13 86:15,18 100:13 116:18 144:21 160:1	000311 88:13 000312 88:14 000320 88.16 000323 88:17 105:23 000408 80:17 0008 4:18 0009 142.18 000904 61:2 000914 149:10 00184 123-7 00192 29.1 44:15 77 6 96:18 00193 29 2 00196 29:2 83:3 00197 29 2 00198 29 2 00199 53:21 56:6 58:3 77:7 0028 142:2 00338 105:24 00914 60:14 00918 11 8 0094 155 9 0183 87:7 0188 123 8 0191 152 23 0192 76:7 127:23 0193 50:8 0198 27:21 0199 85:17 86:5 87:18 88:4 02-02-10 163:24 0203 27:23 0209 27:24 0226 28:1 024 143:20,23 144:3,6 025 143:20,25 144:4,7 144:11 0250 81:21 0255 61:15 0269 88:10 028 146:11 0307 88:11 0322 88:16 0339 106 3,6,8 0407 88:17 106:3,6,8 0420 80:18 075718 163:24 0913 61:3 0914 63:7 0917 60:15 0922 11:9	96:17 125 12,21 163:8 1005 155:9 11 3:7 113:5 117:25 118:6,22 12 113:10 117:8,14,21 119:22 122 3:21 13 109 2,12 110:16 113:13 114:4 116:1,2 116:3,13 117:17 119:1 120:21,23 121:1,3 124:19,22 125:3 14 112:6 113:13,16 117:8,14,21 119:25 15 16:24 111:18 112:22 112:25 113:13,16 120:3 142:12,15 145:19,22 152 3:23 16 108,13,14,25 109:3 110:10 113:2,13,16 113:21 114:9 115:21 120:6 162 3:25 163:9 163 3:25 17 113:14,16 120:9 18 113 6,19 118:1,7,24 180 148.1 19 113 22,23,25 120:12 192 44 16,19,25 45:3 76:24 77.2 193 128:8 194 128.8 1950 2 4 196 82 11,14,18 128:8 197 128 8 198 83:9,12 128:9 1981 7 14 1982 6 2,4,8,19,20 7:14 1983 6:20 9:4 22:4 23:9 131:22 1984 22:5 23:9 44:3 60:4 77:18 78:3 91:6 92:8 93:3 114:18,20 115:18,24 116:6 130:24 131:23 133:15 1985 32:18 44:4 54:18 55:18,20 56:11,12,18 69:16 1986 32:24 36:8 47:13 51:2 71:25 77:18 78:3,11 114:20 115:2 115:5,18,24 116:6 133:15 137:17 138:3	
V		X	Y		
verbal 39:1 verbatim 92:25 version 32:21 33:3 vitae 4:21 5:3 8:12 VLSI 3:11,11,12,13,14 3:16,22,23 8:9,14,15 8:22 22:18,21,24 23:4 23:6,12,13,15,18,20 23:21,23 24:2,8,15,24 25:6,21 26:4 32:13 33:4 34:15,20,23 35:11 40:10,24 57:11 57:14,19 59:5,23 60.9 60:16,25 87:1 98:11 98:13,16,18 99:7,13 99:21 100:1 131:12 131:13,17,20 132:2 156:4,8 volition 143:10 vs 1:4,9		X 3:1	yeah 8:15 38 19 74:8 111 25 116:3 121:6,6 year 7:13 9.2 22:3 26.9 35:21 43:12 69:15 101 8 131:24 years 12:21 16:24 30:13 45:20 70:20 73:25 74:1 131:19 Yesterday 20:19 Yoon-Pin 1:15 3:3 4:2 4:11		
W		\$	0		
W 149:24 Wait 124 23,23 waived 161:6 want 18:22 76:1 82:5 92:24 104:20 108:3 121:5 122:4 wanted 16:8,10 63:10 63:14 Washington 2:9 wasn't 37:8,11 48:5 51:15 52:2 97:16 101:4 137:3,18 way 68:16 105:18 108:15 149:5,6 152:3 ways 15:4 35:16,17 39:11 68:15 101:7 103:5,9 Wednesday 1:18 week 56:21 weekly 71:6 Weinstein 20:1,12 106:23 107:5 152:2,4 152:6		\$250 18:8	00001 4:17 0001 142:2 000157 87:7 000189 152.23 000192 27:21 128:8 000199 27:22 126:16 000200 128.4 000204 27:24 128:4 000205 128:5 000216 27:25 000239 61:15 000256 28:2 128:6 000264 88:9 000308 88:12		1 1 44:13,14,15 76:8,17 77:5 82:17 89:18,22

Deposition of:
Simon Yoon-Pin Foo, Vol. I

May 31, 2006

Page 13

152:25 153:10 1987 35:23 50:13,19 51:4 142:12,15 145:19,22,22 1988 78:14 199 54:16,20 55:10,19 57:25 125:22 1990 56:11 78:16,19,21 79:25 80:2,6,19 81:24 1993 151:23	146:11 4th 2:4 4:30 1:20 161:5 42 109:17 110:12 114:7 115:8,12,16 116:14 432 3:21 17:5,7,9 117:9 117:20 122 6 136:16 140:1,5,10 141:21 145:12 152 16 158:25 159:5,8,11,18,21,22 45 109:19 46 112:22 47 112:7 48 109:20 112:25	62:2,11,13,21 63:7,15 64:6 71:24 100:15,19 116:25 147:17 148:2 149:10,15,22 509 3 12 61:2,3,6,9,22 62:2,11 63:5 100:15 116:25 510 3:13 61:14,16,19 61:22 62:2,11,14 63:5 81:1,11,19,21 100:15 100:19 101:1,8,13,15 117:2,11 511 3:14 87:6,11,19 116:24 117:11 512 3:16 87:22 88:6,8 513 3 16 87:22 88:10 103:12,17 104:13 105:18 514 3:18 87:22 88:11 128:9,9 515 3:18 87:22 88:12 128:10,12 516 3:19 87:22 88:13 517 3:19 87:22 88:15 105:18 518 3:20 87:23 88:6,16 103:12,17 104:14,18 104:24 105:1,5,8,11 105:23 106:1,2,5,10 116:24 117:11 519 3:21 122:5,8 131:2 136:16 52 109:22 110 13 114:9 115:9,13,21,24 116:14 520 3 22 123:4,5,7 124:4,6,8 125:17 521 3:23 152:22 153:3 153:6,16 522 3:23 155:8,12,15 156:1 157:6 158 14 158:17,25 159:4,15 159:22 542 125:13	8 80 3:11 80s 46:2 83 9:4 84 9:5 44:4 45:7 47:14 50:10 74:3 77:16 114:23,24 116:9 85 50:10 60 4 101:10 86 32:18 44 4 45:7 47:14 50:11 51:1 77:16 101:10 114:18 114:23,24 116:9 130:24 137:20 87 3:15 36:9 50:16 51:6 51 6 78:13 101:11 88 3:16,17,18,19,20 3:21 74:3 890B 152:25 153:13 154:23
2 2 82:17 20 12:21 45 20 70:20 110:20 114:1 117:8 117:15,22 120:15 2002 20:5 107:1 2003 20:5 20037 2:9 2006 1:18 5 4 19:10 43:13,16 45:8,9 132:16 162:9 163:17 206 128:5 207 128:5 208 128:5 209 128:5 21 113:7 2101 2:8 254 101:15 102:12,20 257 128:6 258 128:6 259 128:7 263 28:2 128:7 268 88:9 28 3:8,8,9,9,10,12	5 50 112:9 500 3:6 4:17,18,22 24:25 26:15 501 3:7 11:8,11,12,16 11:20 12:1 502 3:8 27:16,20 28:3,7 28:9,12,14,17,18,24 29:8,12 41:3 42:13,16 42:25 43:7,16,20 44 2 44:3,8,15 45:4 50:5 76:5,8,24 77:6,8,17 77:20 78:2 82:8,11 83:3 89:19,23 91:23 96:4,7,16,18 97:2,5 100:18 116:21 117:11 125:17,19,21 127:23 128:1,8 503 3:8 27:16 53:21 54:16 56:1,6 57:25 60:23 61:10,24 64:9 65:11,24 66:24 67:18 68:3,12 69:11,23 77 7 85:17 86:5 87:18 88:4,21 89:4 91:23 92:16 125:23 126:2 126:10,16 127 6,12 127:16 128:4 504 3:9 27:16,23 128:4 505 3:9 27:16,24 506 3:10 27:16 28 1,3,7 28:9 41:3 77:8,17,22 77:23 78:2 96:4,8 97:2,5 100:18 116:21 117:11 125:17 128:1 128:6 507 3:10 80:17,18,21 80:24 81:5,8,24 82 6 117:4,11 508 3:11 27:22 60:14 60:15,18,21 61:9,22	6 61 3 13,14 6239 4:14 65 109:4	9 9:28 1:19 914 148:4,14 150:12 915 149:22 916 148:1 94303 2:5 997 157:23 158:2,6 998 158:17
3 3 82:18 3010 88:12 31 1:18 319 88:14 32 112:6 32312 4:15 34 109:3,3 36 111:15 37 109:14 39 106:15,16,18,20 108:13 109:16 110:8 110:9 111:16 114:6 114:16 115:2 116:14 117:9,14,24 118:4 122:5			
4 4 3:3,6 102:20 103:3,7 142:1,6,18 143:21		7 74 102:25 741 102:6 74173 102:8,11 74193 101:17,19,19	

Exhibit 7**Annotation of the First Two Paragraphs of Ricoh's Statement**

(Underlined sections reflect citations to the original text)

In the 1980's, Yoon-Pin Simon Foo was a student at the University of South Carolina, and was one of several students who worked for Dr. Kobayashi's company, International Chip Corporation ("ICC"). (Exh. 6, Foo Tr. at 6, 35-36). Dr. Kobayashi recruited Mr. Foo to the University, and acted as his advisor for several years. (Id.) In 1987, Mr. Foo had a disagreement with Dr. Kobayashi regarding Mr. Foo's failure to complete a project for ICC, and Mr. Foo changed advisors. (Id. at 35-39, 81, 108). Prior to the falling out, Mr. Foo did some limited computer coding work for ICC, and under the direction of Dr. Kobayashi, helped enter some the computer software code that was included in a version of ICC's software called Knowledge Based Silicon Compiler. (Id. at 36, 63, 71-73). KBSC's documents reflect that Mr. Foo was among the least active of the students who did work for ICC. (Exh. 8, KBSC check registers showing payments to many students for KBSC work).

Nearly twenty years later, in April 2006, counsel for the Aeroflex Defendants and Synopsys contacted Mr. Foo, and agreed to pay him \$250 per hour to "consult" about Mr. Foo's work for ICC in the 1980's. (Exh. 6, Foo Tr. at 17-19). Defendants' counsel exchanged a large number of documents with Mr. Foo, but have refused to produce them. (Exh. 3, Foo privilege log.) Apparently as a result of these conversations, on April 24, 2006, defendants alleged for the first time in their supplemental invalidity contentions, claiming on information and belief that Mr. Foo was the inventor, or at least a co-inventor, of some of the concepts disclosed in the '432 patent. (Exh. 1, at 11-14). Ricoh promptly subpoenaed Mr. Foo as a fact witness on May 3 (Exh. 2), and on May 19, 2006, defendants produced some documents, as well as a privilege log. (Exh. 3). On May 22, Ricoh's counsel challenged the assertion of privilege (Exh. 4), and the next day defendants' counsel (Ms. DeMory) responded that "[w]e have properly asserted privilege with regard to all logged communications and will not be producing any additional documents." (Exh. 5). Mr. Foo was deposed on May 31, 2006, where he made several astonishing claims, including the fact that he was the sole inventor of claim 13 (the main claim asserted in this litigation), but had virtually no documents to back this assertion, and never told anyone about it his "invention." (Exh. 6, Foo Tr. at 131-36).

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

RICOH COMPANY, LTD.,
Plaintiff,

vs.

AEROFLEX ET AL,
Defendants.

CASE NO. CV 03-4669 MJJ (EMC)
CASE NO. CV 03-2289 MJJ (EMC)

MANUAL FILING NOTIFICATION

SYNOPSISYS, INC.,
Plaintiff,
vs.
RICOH COMPANY, LTD.,
Defendant.

Regarding: Exhibit 8 to the August 10, 2006 joint letter to the Honorable Edward M. Chen.

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Dated: August 10, 2006

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